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DISEASES OF INFANTS AND CHILDREN

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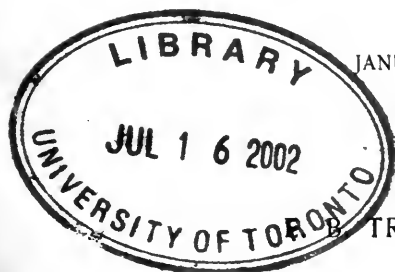
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ARCHIVES OF PEDIATRICS.

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[No. 1.]

Original Communications.

A CLINICAL STUDY OF LABORATORY MILK IN SUBSTITUTE INFANT FEEDING.

BY LOUIS STARR, M.D.,

Philadelphia.

Properly prepared laboratory milk food has certain readily recognized advantages. The original milk is obtained from carefully selected and kept stock; it is milked from the cow by clean, often gloved, hands and due care is taken in the cooling and subsequent treatment to prevent the introduction of gross or microscopic foreign matter. Again, to insure still further an aseptic food, each day's supply is pasteurized or sterilized before it is sent to the infant; and, if it must be shipped a long distance, it is packed in ice and thus kept at a temperature unfavorable to fermentation or other injurious change. The same care for absolute cleanliness is also observed with the apparatus used in preparing the food and with the bottles in which it is served. The food comes to the infant ready to be administered, except that it must be warmed, and the labor of home preparation is avoided. The infant receives from day to day a food which is uniform in quantity (each feeding being sent in a separate bottle); has an identical percentage of fat, sugar, and proteids, and a fixed alkalinity. Laboratory milk being prescribed, it is possible for the physician to supply an artificial food identical in chemical composition with normal human milk, and at the same time to vary at will and accurately the percentage of fat, sugar, and proteids to meet the demands of each infant's digestive powers and developmental requirements.

With all the above advantages laboratory milk is theoretically the most perfect substitute for normal human milk that science has yet devised. But unfortunately clinical experience, in my own practice at least, does not bear this theory out.

The following is a generalization of the results of over two years' study of the use of laboratory milk food in substitute feeding:

These results may be classified under three heads, *viz.*:

(a.) The satisfactory—embracing the very exceptional cases of perfectly healthy children who have been continuously fed upon laboratory milk, from, or shortly after birth, up to the time of beginning a mixed diet. I have seen but three of these in as many years.

(b.) The partially satisfactory—including cases, much greater in number than the preceding class, in which laboratory milk was used for a considerable period—six months to a year—without producing active illness, but gradually inducing health conditions necessitating a change of food. Of this class I have seen sixteen cases.

(c.) The unsatisfactory. The instances of this group are by far the most numerous, and in it, in my experience, may be placed the vast majority of infants fed upon laboratory milk after the first eight weeks of life. It embraces those cases in which laboratory milk feeding must, of necessity, be discontinued on account of the onset of some acute disorder of undoubted dietetic origin. My cases in this class number thirty-five.

The unhealthy conditions referred to in the second class present a very uniform group of symptoms, *viz.*: Pallid, dry skin; dry, lusterless hair; flabby, soft muscles; indifferent appetite; inactive—not decidedly constipated—bowels, with clay colored evacuations; light colored urine; listlessness and disinclination to play; peevishness and restless sleep—in a word the features of malnutrition. With the muscle flabbiness there is not always emaciation, but the two conditions are often associated and the little sufferer is both weak and puny, and the observant mother states “I do not know what is the matter with my child; he is not ill, but he does not seem to thrive and is not like other healthy babies.”

ILLUSTRATIVE CASE.—Boy, *act.* ten months, presented above symptoms; no history of acute illness. Fed from birth upon laboratory milk, modified in composition as age advanced, until the following strength was reached:

Fat,	-	4	No. of feedings,	-	5
Sugar,	-	6	Quantity,	-	8 ounces.
Albuminoids,	2	50	Alkalinity,	5 per cent.,	Heat, 167° F.

Improvement began soon and continued steadily under a domestic mixture of:

				CALCULATED PERCENTAGE.	
Cream, 16 per cent.,	-	1	tablespoonful.	Fat,	- 3 75
Milk, - - -	-	11	tablespoonfuls.	Proteids,	2 97
Milk sugar, - - -	-	1	teaspoonful.	Sugar,	4 94
Water, - - -	-	4	tablespoonfuls.		

For each feeding, every three hours, five meals daily.

The acute disorders occurring in the third class are:

FIRST.—*Acute gastro-intestinal catarrh*, indicated by pyrexia, vomiting, and diarrhoea with the expulsion of curds and greenish mucus or large quantities of greenish serum.

ILLUSTRATIVE CASE.—Girl, *aet.* two and a half months when seen in consultation. She had been fed from birth on laboratory milk:

1st and 2d weeks,	{	Fat, -	2	Alkalinity, 5 p. c.	Heat, - 167° F.
		Sugar, -	5		
		Albuminoids, 0	75		

Bowels occasionally disturbed, stools curdled and greenish. No gain in weight.

3d to 6th week,	{	Fat, -	4	Alkalinity, 5 p. c.	Heat, - 167° F.
		Sugar, -	6		
		Albuminoids, 1			

Bowel movements never quite normal, always too frequent and greenish, and often very green with isolated hard curds and a quantity of mucus; infant restless, sleeps badly, colicky, and gaining weight very slowly.

6th to 8th week,	{	Fat, -	4	Alkalinity, 5 p. c.	Heat, - 167° F.
		Sugar, -	6		
		Albuminoids, 0	75		

No change in intestinal symptoms; no gain in weight; infant growing feeble.

9th week,	{	Same food, predigested six minutes with Fairchild's Peptogenic Milk Powder.			
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No improvement, except that curds passed are smaller and softer. (Predigestion performed at laboratory ?)

In the tenth week the infant suddenly became very ill; high fever; vomiting; frequent, large, green, watery evacuations, with mucus and curds, rapid and extreme prostration. Milk food was stopped for twenty-four hours. Food, barley water and raw-beef juice. Intestines disinfected with small doses of calomel, and cleansed by high rectal injections of normal saline solution.

On succeeding day fed upon:

		CALCULATED PERCENTAGE.
Cream, 16 per cent.	1 tablespoonful.	Fat, - 2 67
Milk, - -	2 tablespoonfuls.	Albuminoids, 1 29
Milk sugar, -	1 teaspoonful.	Sugar, - 4 24
Salt, - - -	a pinch.	
Water, - - -	6 tablespoonfuls.	

For each feeding, every 2½ hours.

This was gradually increased in strength as the improvement, which was continuous, allowed, until at the end of a week the following was being taken:

		CALCULATED PERCENTAGE.
Cream, 16 per cent.	1 tablespoonful.	Fat, - 3 55
Milk, - -	4 tablespoonfuls.	Albuminoids, 2 18
Milk sugar, -	1 teaspoonful.	Sugar, - 5 24
Salt, - - -	a pinch.	
Water, - - -	4 tablespoonfuls.	

For each feeding, every 2½ hours.

There was no further trouble after the above domestic mixtures were employed; the evacuations became normal, and strength and weight improved rapidly, the food being increased in strength and quantity as increasing age demanded.

SECOND.—*Infantile Scurvy.* This condition is an exceptional result of laboratory feeding, but the possibility of its occurrence is of importance.

The following notes were kindly furnished by Dr. W. F. Teller, in whose practice the case occurred.

Boy, born January 28, 1897, weight seven pounds. It being impossible for the mother to feed the child from the breast, he was placed upon laboratory milk in the following proportions:

Fat, - - - - -	1
Sugar, - - - - -	5
Proteids, - - - - -	0 75

This was gradually increased in strength until by the middle of April (*aet.* two and a half months) he was taking:

Fat, - - - - -	4
Sugar, - - - - -	7
Proteids, - - - - -	1 50

Intestinal disturbance with green, mucoid evacuations containing curds ensuing, the food was changed to:

Fat, - - -	3 50	} 8 feedings of 4½ ounces each.
Sugar, - - -	6 50	
Proteids, - - -	1 50	

On June 15th (*aet.* five and a half months) the weight was twelve pounds. The intestinal indigestion continuing, a further change was made:

Fat,	-	-	3 50	} 7 feedings of 5 ounces each.
Sugar,	-	-	6 50	
Proteids,	-	-	1	

About one week later the child began to evince pain on moving or handling the legs, which were drawn up toward the abdomen and rigid; there were no fusiform swellings, and no petechial spots. Four incisor teeth were cut, and the gums about these were purple, swollen, spongy, and bleeding. There was diarrhœa with green, curdled and fermented evacuations; no fever.

Orange juice and raw beef juice were ordered with a simple treatment directed to the intestinal disturbance, and the scurvy symptoms gradually improved and soon disappeared entirely.

After this until October (*aet.* seven months) he had:

Fat	-	-	3 50	} 6 feedings of 6½ ounces each.
Sugar,	-	-	6	
Albuminoids,	-	-	1	

Together with half an ounce of raw beef juice once daily, given "because it was necessary to keep the albuminoid percentage so low in the laboratory milk mixture."

In October, as the child though not ill did not thrive, the beef juice and laboratory milk were discontinued and a home modified milk food substituted with the most satisfactory results.

The question now naturally arises, why should a food capable of being prescribed to approach so nearly breast milk in chemical composition, so uniform in its make up, so sterile and so easily and accurately varied to meet digestive emergencies, fail when put to a clinical test?

My answer is that in its composition all the fat is removed by a separator, and the food as prepared for the infant is a recombination of this fat and an alkaline solution of the proteids and sugar. In a word the natural emulsion is destroyed. This, I think, in some way lessens the digestibility of the proteids and leads to conditions either of mal-nutrition or to an irritative diarrhœa with the expulsion of the undigested proteids in the form of compact curds—and this, too, despite changes in the proportion of the proteids; for the partially starved children are attacked with vomiting or diarrhœa with fever if the percentage

of proteids be increased (say to 2.00 per cent. at ten months), and those having irritative diarrhœa are not benefited until the percentage is cut down to a starvation point—(0.75 per cent. in a child of three months still showed numerous curds in the evacuations). What a contrast to normal breast milk, an emulsion having over 2 per cent. of proteids [Leeds].

I have never seen an infant from two to ten months able to stand a laboratory mixture of stronger proteid percentage than 1.50, and have often seen cases of two months and more unable to digest a percentage of 0.50.

On the other hand how does it stand with the cream, milk, sugar of milk, and water mixture made at home by capable heads and careful hands? These mixtures are still modified milk mixtures; but their basis is unseparated milk, a natural emulsion, containing fat, proteids, sugar, and salts. Under this physical condition the proteids are much more easily digested, so that a badly nourished child of ten months, in whom laboratory milk percentage cannot be forced higher than 1.50 proteids, will easily digest and grow strong upon a domestic mixture of:

				CALCULATED PERCENTAGE.	
Cream, 16 per cent.,	-	$\frac{2}{3}$ ss.	Fat,	-	3 75
Milk, - - - -	-	$\frac{2}{3}$ vss.	Sugar,	-	4 94
Milk sugar,	-	3 i.	Proteids,	-	2 97
Water,	-	$\frac{2}{3}$ ij.			

And an infant of two months having an irritative diarrhœa on a starvation diet of 0.50 per cent. proteids, will begin to improve and soon grow strong and well on:

				CALCULATED PERCENTAGE.	
Cream, 16 per cent.,	-	$\frac{2}{3}$ ss.	Fat,	-	4
Milk, - - - -	-	$\frac{2}{3}$ x.	Sugar,	-	6 22
Milk sugar,	-	3 i.	Proteids,	-	2 09
Water,	-	$\frac{2}{3}$ iss.			

In domestic modification, of course, the same care must be taken to secure clean, pure milk and cream from healthy, well kept cows. This is quite possible now in Philadelphia, and is becoming easier each year, as more attention is being given to infant feeding and greater demand is being made for a pure milk supply. Pasteurization is as readily done in the nursery as in the laboratory. Accurate measurement of quantities and cleanliness of vessels and feeding bottles is equally possible and, in my experience, quite as certain at home as in the shop.

The milk and cream from a dairy may vary slightly in

chemical composition from day to day, but this variation seems to me to be a minor detail, and of questionable importance when compared with the separator's destruction of the physical properties of the basal milk. One certainly would not sacrifice every thing to chemical accuracy.

I must not be understood as condemning laboratory milk absolutely. If its introduction has done nothing else, it has greatly advanced substitute infant feeding, by fixing the attention of the profession upon the importance of cleanliness and accuracy in the quantity and chemical composition of cow's milk foods, and by placing the whole question upon a higher scientific plane than it has ever reached before.

Further, laboratory milk is of great use in feeding infants who must be artificially nourished from birth, and may often (about 20 per cent. of cases) be advantageously employed up to the end of the second month, and is better at any age than the haphazard mixtures employed by careless and untrained mothers or nurses.

At the same time like every other single plan of preparing artificial food for infants (sterilization for instance) its applicability is limited, and much more so, in my experience, than the process of modification in which unseparated milk is employed.

1818 RITTENHOUSE SQUARE.

Lumbar Puncture in Children.—At a meeting of naturalists and physicians, held at Düsseldorf last September, a paper was read on this subject by M. Pfaunder, who had performed nearly 200 lumbar punctures in Escherich's clinic. In tubercular meningitis the cerebro-spinal fluid drawn during life contained tubercle bacilli in 90 per cent. of all the cases. After death the bacillus was found in every case which was examined. In epidemic cerebro-spinal meningitis the micro-organisms found were the diplococcus of Weichselbaum and the meningococcus of Heubner. In many of the atrophic children undergoing treatment in hospital the fluid contained micro-organisms. From a therapeutic point of view, whenever intracerebral pressure was directly threatening to shorten life, lumbar puncture acted effectively as a palliative measure. In many cases it relieved the intense pain in the head, the hyperæsthesia, the delirium, the coma, and the convulsions. In several cases of hydrocephalus a cure was brought about by this means. As an operation it might be regarded as free from risk, if ordinary precautions were employed.—*Rev. mensuelle des Maladies de l'Enfance; Edinburgh Medical Journal.*

CEREBRO-SPINAL SYMPTOMS IN INFLUENZA IN INFANCY.*

BY THOMPSON S. WESTCOTT, M.D.,

Instructor in Diseases of Children, University of Pennsylvania,
Philadelphia.

Epidemic influenza, as observed in infancy and early childhood, apart from the greater danger of cardiac failure, broncho-pneumonia, and gastro-intestinal disturbance incident to early life, usually differs little from the disease as it occurs in older patients. Indeed in some epidemics, notably in that which visited Philadelphia during the past winter, the type of the disease in children has been generally milder than in adults, and many of the uncomplicated cases ran their course in a few days with rapid convalescence and complete recovery. Occasionally, however, in very young children the case may suddenly assume an exceedingly grave aspect from the appearance of distinct cerebro-spinal symptoms, and, despite the most watchful and active treatment, reach a speedily fatal termination through failure of the heart or the respiratory centres. It is to such a class of cases, rather than to those presenting more distinct evidences of true meningitis that the writer desires to call attention.

CASE I.—A marked instance of centric respiratory failure came under observation in the winter of 1897 and was reported in a paper read before the Philadelphia Pediatric Society April 13, 1897, which was published in the ARCHIVES OF PEDIATRICS (October), of the same year. I shall refer to this case in brief abstract. The patient was an infant four weeks old, born at a time when influenza was epidemic, the attack following several characteristic cases in the same household, one of which was in the person of the mother. After a prodromal period of several days characterized by a slight catarrh of the upper air passages and larynx, the cerebral symptoms were ushered in by a slight convulsive seizure with marked failure of respiration, and increasing stupor, with a rather slow but weak pulse and the physical signs of a small area of broncho-pneumonia. For thirty-seven hours this baby remained in an extremely critical condition. At first, tonic laryngeal spasm followed

* Read before the American Pediatric Society, Deer Park, June 29, 1899.

by a period of apnœa occurred every fifteen to twenty or thirty minutes. In a short time the spasmodic character of the attacks gave place to a slowly increasing weakness and failure of respiration, gradually merging into complete apnœa with increasing cyanosis of the whole surface and rigidity of the limbs. Strong reflex excitation of the surface by flagellation, immersion in hot water, cold affusion, oxygen insufflation, or artificial respiration by the Schultze method, or various combinations of these procedures was successful in averting threatened suffocation many times. Twenty-nine attacks of more or less dangerous apnœa were counted in the first seventeen hours, and fully as many more occurred in the next twenty hours, during all of which time I was compelled to remain in the house within call. In some of these attacks convulsive movements of the eyelids and of the globes were observed, and at one time a marked spinal convulsion with rigidity and opisthotonos occurred. The baby finally recovered after a steadily continued hypodermatic treatment by atropin, tincture of digitalis, and finally antipyrin, together with the internal administration of sedatives—bromides, musk, and asafœtida. A marked alternating internal strabismus was the only evidence of organic disturbance, and this gradually and completely disappeared after several weeks without special treatment. In this case the pathological condition seemed to be best explained by an œdema or congestion at the base of the brain, probably quite limited in extent and involving to some degree also the medulla with the respiratory and pneumogastric centres and the upper spinal meninges. The condition of respiratory failure could be compared most closely with the respiratory paralysis of profound opium narcosis.

CASE II.—A second case, which recently came under observation in consultation with Dr. Maguire, of Lansdowne, while occurring several months after the active period of the epidemic of the past winter, was seen about the same time as several other sporadic cases of distinct influenza, and, for various reasons, to be discussed later, seems to be properly attributable to the same cause.

Margaret W., aged nine months, who had been artificially fed from the end of the first month on milk and one of the more recently introduced patent foods, was first seen on April 24th, about twenty-four hours after the beginning of the acute symptoms of her illness. She had never been a very strong child.

She had always been of constipated habit and, while fairly nourished, was not robust. For several days before she was taken acutely ill her bowel movements had been slightly loose, and were somewhat more frequent than usual, but no other abnormality was noticed. On Sunday, April 23d, she was apathetic and irritable, and in the afternoon it was observed that she looked pale and the eyes were slightly crossed. She vomited shortly after taking her evening bottle, and passed a restless night, vomiting everything taken into the stomach; the bowels became looser. On the morning of the 24th, when I first saw her, she was rather stupid, the pulse was weak, but not more rapid than 120; the rectal temperature was 100°, the respirations 40, catchy and labored in character, with slight moaning. The head was somewhat retracted, the pupils sluggish to light. The lungs showed no distinct changes in as thorough an examination of the chest as I felt justified in making at the time; but the rapid and labored respiration was very suggestive. A provisional diagnosis of meningeal irritation due to toxæmia, probably of pneumonic origin, was given; $\frac{1}{160}$ grain of atropin sulphate hypodermatically was ordered with $\frac{1}{160}$ grain of digitalin, the latter to be given at four to six hour intervals as indicated. Albumen water with peptonoids was given in small quantities and the bowels flushed with normal saline solution. After the washing a considerable quantity of gas of foul odor was passed; slight cough was noted several times. Respiration irregular, but pulse slightly improved.

April 25th.—Head distinctly retracted, with tendency to opisthotonos. Bowels flushed again during the night, a large quantity of foul gas and dark green fecal matter being passed; throat is negative. Morning temperature, 100° in rectum; pulse, 126, weak; respiration, 44; hands and feet cold. Stomach has been quiet since preceding morning. Digitalin continued; coughed once or twice during the night. An area of impaired resonance, with feeble, broncho-vesicular breathing, but without râles, is now noticeable at the right base posteriorly; neck is stiff and head retracted; bowels to be washed with boric acid solution, according to the accumulation of gas.

Evening temperature, 100½°; pulse, 126; respiration, 44. Urine has been passed several times.

April 26th.—Temperature, 99.6°; pulse, 122; respiration, 34. Seems brighter; head moved restlessly from side to side;

less rigidity of the neck. Vomited once the preceding evening and once in the morning, the vomitus containing mucus.

Digitalin in doses of $\frac{1}{100}$ grain to be given hypodermatically every four hours. The spot of congestion at the right base has cleared up, but a similar area is noted at the left base posteriorly. Slight cough persists. Green fecal matter in the bowel washings; flatus collects persistently. Evening temperature, $101\frac{1}{2}^{\circ}$; pulse, 140; respiration, 38-40. Stomach has been retentive all day. About 7.30 P.M. twitching began in the left arm and hand and then rapid movements of pronation and supination of the forearm; similar movements soon began in the right arm and hand, and these continued at intervals through the night. A distinct tache cérébrale can be developed over the abdomen and chest.

April 27th.—About 7 A.M. she was given water in her bottle, but did not notice well, though she swallowed it. Fifteen minutes later convulsive twitching began in the left arm about the elbow, and extended to the hand. The right arm then began to move quickly from supination to pronation and back. The legs were curved inward a little and the feet drawn inward, the great toes being markedly flexed on the soles. The right foot was flushed, the pulse at the wrist not perceptible, according to the nurse's observation; respiration was catchy, sobbing, and irregular. The eyelids twitched, the face became deeply cyanosed and the discoloration spread over the body, the legs as far up as the hips being cold and deeply mottled in a condition resembling *post-mortem* lividity. The neck was quite stiff. The abdomen was greatly distended with gas. The nurse immediately gave a hypodermatic injection of $\frac{1}{100}$ grain digitalin, and half an hour later $\frac{1}{100}$ grain was given on the doctor's arrival.

The child was inverted and in this position the bowels were flushed out with boric acid solution, large quantities of gas being expelled by the bowel. Subsequent discharge of flatus was encouraged by leaving a rectal tube *in situ*. Hot and cold affusions to the chest, aided by hot sponging of the limbs and a hypodermatic injection of $\frac{1}{100}$ grain of atropin sulphate, with the digitalin already given, aided in re-establishing after several hours a satisfactory condition of circulation and respiration.

At 1 P.M. the temperature was $103\frac{1}{2}^{\circ}$, respiration deeper, and the pulse improved, 160. The legs were rigidly extended, the left arm and body stiff, but the right arm was raised and

moved about with a slow rotary motion from the elbow. Marked stupor with slight alternating internal strabismus.

Hourly doses of 1 grain of bromide of sodium ordered. Cold to the head and sponging. When disturbed to take medicine both arms are raised and quiver for a time. Continue digitalin $\frac{1}{400}$ grain every fourth hour. Urine is passed more freely. At 4 P.M. the left knee and elbow joints were quite rigid in an extended posture when touched, but both hands are used voluntarily and mental condition is improved.

The evening temperature was $102\frac{3}{4}^{\circ}$; pulse, 145; respiration, 36, irregular. Head was moved voluntarily. Atropin injection repeated. There is a circumscribed flush on the left cheek and the skin of the whole of this side of the head is glossy and warmer than the other side.

April 28th.—During the night the left arm, which had been rigid to handling was relaxed and moved frequently. The right arm was rigid and the hand clenched; the left leg on being disturbed became rigid and the toes tightly flexed on the sole. Neck is again stiff. Pulse improved, 130; respiration, 26, and more regular. Whey and barley water was taken regularly, and she slept fairly for most of the night.

Morning temperature, $102\frac{3}{4}^{\circ}$; pulse, 132; respiration, 26. Considerable gas in bowel relieved by the rectal tube. Left eyelid is purplish in tint. Left leg is still somewhat rigid. Green and brownish feces with mucus from bowel washing. Evening temperature, $104\frac{3}{4}^{\circ}$; pulse, 150; respiration, 45, coming down in a few hours to 101° ; pulse, 122; respiration, 28, after a washing of the bowel.

April 29th.—Temperature did not rise above 101° . General condition improved. Is able to move head and limbs, but there seems to be a considerable degree of muscular soreness. Rectal tube produces a brown actively fermenting stool. At the left base there is a distinct area of impaired resonance with harsh broncho-vesicular breathing; $\frac{3}{8}$ grain calomel to be given with food every two hours. Evening temperature, $101\frac{3}{4}^{\circ}$; pulse, 120; respiration, 28. Rested quietly all evening, but the left arm moved restlessly and was frequently raised to the face. Slight rolling of the eyes.

April 30th.—Morning temperature, $100\frac{3}{4}^{\circ}$; pulse, 120; respiration, 28. Goes to sleep with the left arm rigidly extended. Cries when touched. Tongue is frequently protruded. Soon

after mid-day restless tossing of the head which is frequently jerked backward. Face has a swollen, glazed appearance, with dark rings about the eyes. About 3 P.M. increased rigidity, more marked in the left leg than in the right; toes flexed on both feet, the left very tightly; right hand tightly clenched. Color became bad, bluish about the mouth; heart action weak and irregular, respiration faint and irregular. Abdomen is somewhat distended, the extremities cool. Bowels washed with warm boric acid solution, and a large amount of gas and a little feces brought away. Digitalin $\frac{1}{400}$ grain hypodermatically, shortly after which the pulse was 116, much improved in character, and the temperature, 100° .

May 1st.—She had a quiet night. Several stools in the morning from castor oil given the night before. Temperature, 100° ; pulse, 118; respiration, 26. Taking nourishment well. Shortly before the morning visit she began rolling the head from side to side and protruding the tongue. Fretting, wakeful, general rigidity very marked. Stares frequently at the ceiling. Bromide of sodium 2 grains every two hours and calomel $\frac{1}{32}$ grain every two hours to be given steadily. Digitalin $\frac{1}{400}$ grain given at noon for weakness of pulse and tendency to cyanosis.

Respirations have been ranging between 26 and 30. Lungs are quite clear. The right hand, which has been tightly closed, is now relaxed, but the legs are still rigid. Head rolling and spasmodic movements of the lips began again in the afternoon. In the evening the convulsive movements of the head and eyes were constant. Flatus relieved by rectal injection containing a little turpentine. Two hours later the abdomen was greatly distended. A large quantity of gas and smooth brownish-green fecal matter was expelled after insertion of the tube. Respiration before this was irregular and shallow, but became fuller after washing the bowel. Temperature, $99\frac{3}{8}^{\circ}$; pulse, 112.

May 2d.—Several times during the night the abdomen became distended and required relief. General rigidity continues. Right hand clenched and quivering. Morning temperature, $99\frac{3}{8}^{\circ}$; pulse, 120. Fretful. During the day a large amount of gas and small quantity of smooth brown fecal matter, less offensive in odor, was passed through the tube. Movements of the head are less violent, but are almost constant while baby is awake; the neck is less stiff; there are frequent involuntary movements

of the left arm. Evening temperature, $99\frac{2}{3}^{\circ}$; pulse, 116; respiration, 22. A better evening, several stools after a laxative.

May 3d.—Had a quiet night. Seems hungry. Gas passed frequently from the bowel without tube. Movements of the head and arm are gradually subsiding.

May 4th.—Toward evening temperature rose to $101\frac{2}{3}^{\circ}$; pulse, 22; respiration, 30, with a little cough. Some dullness at the base of the right lung posteriorly, and during night the temperature reached 102° , with respiration of 44. Restlessness and rigidity increased. By morning of May 5th, temperature had fallen to normal, and so remained. Rigidity of neck is less, but the rest of the body is about the same as before. Uses left hand naturally, but no effort is made to use the right hand, and she does not grasp a toy even when it is placed in this hand.

May 6th.—Restless and fretful; bromide continued. There is still evidence of intestinal fermentation. Bowel washing continued. This evening she made an effort to carry the right hand to the mouth. Hungry and takes an increased amount of food. Temperature, pulse and respiration normal.

May 7th.—A fairly good night. Is quite nervous and easily disturbed; still worried by collection of flatus. The nervous irritability is satisfactorily controlled by drop doses of tincture of hyoscyamus.

May 9th.—Has had frequent crying spells, often moving the head from side to side. Still looks "dazed," according to the nurse. Attempts to use right hand a little, moving the arm from the shoulder, but not at the elbow; bent the left leg voluntarily to-day, but it became rigid if touched.

May 10th.—General condition improving; bowel condition not yet satisfactory, the movements being loose, frothy and sometimes greenish. Light massage of the limbs seems to produce a quieting effect; voluntary efforts are now being made.

May 11th.—Right arm was moved at the elbow for the first time.

May 12th.—She can move the left leg much better, and it can be passively flexed, but there is still tendency to become rigid. Gradually regaining use of the right arm; she is very easily irritated and is disturbed by the presence of others, even the nurse.

May 13th.—Condition of bowel movements improving under use of peptonized milk.

May 16th.—Improving steadily. There is still a tendency to stiffening over the entire body when touched or moved, but this is slowly improving; beginning to hold up head.

May 23d.—Uses both hands and arms well, the right nearly as well as the left; legs are freely kicked about.

The case just described offers several interesting questions for solution. In the first place, the diagnosis of influenzal meningitis, or pseudo-meningitis, may very naturally be called in question, and for a long time I was in doubt whether it should not be more properly regarded as an influenza with a coincident mild cerebro-spinal meningitis of the epidemic type, since it is well known that the two diseases have often been prevalent at the same time, or in close sequence, as has recently been illustrated in Philadelphia.

The physical signs in the lungs were so slight and so characteristic of the peculiar pulmonary lesion of influenza that the existence of an ordinary broncho-pneumonia can scarcely be considered.

The process amounted to nothing more than a passing congestion, which changed its site from day to day, and never reached the grade of a true inflammation of broncho-pneumonic type. From the very start there were distinct evidences of a widespread infection, involving at once the gastro-intestinal tract, the cerebro-spinal meninges and the lung. In conjunction with this must be considered the depressed, comparatively slow action of the heart, and the negative facts of absence of herpetic or petechial eruption and of other symptoms of epidemic cerebro-spinal meningitis, excepting the mild and varying signs of involvement of the cerebro-spinal axis. Taking all these facts into consideration I am constrained to conclude this to be a case of influenza, although it lacks the confirmatory evidence of bacteriological study of the cerebro-spinal fluid, which was not permitted.

The discovery of Pfeiffer's bacillus as the exciting organism of influenza has been of such recent date that the relation of this organism to the complicating lesions of the disease has not been completely worked out. Sufficient has been done, however, to indicate that Pfeiffer's bacillus, under certain conditions, possesses pyogenic properties very much like those of the Eberth bacillus (Finkler, *Twentieth Century Practice*); and it will be found, according to the testimony of Arzée, Huysmann, Maillard

and Revilliod, that the purulent forms of meningitis are the most common. Pfuhl, in 1894, described the *post-mortem* findings in three cases of purulent cerebral meningitis, in which he demonstrated the bacillus, and four years later E. Fraenkel (*Zeitschrift f. Hygiene und Infektionskrankheiten*, Bd. 27, H. 3, 1898) reported two cases of cerebral meningitis in infants of ten weeks and nine months, in which the bacillus was found in the purulent exudate.

Besides this form of distinct purulent meningitis, there are other varieties of slighter cerebro-spinal involvement, in which the damage is less severe and from which recovery may frequently take place.

Thus, Hetweg in eleven autopsies found constantly present a very marked hyperemia of the entire central nervous system, such as is otherwise never encountered. The arteries at the base were particularly engorged and the consistence of the cerebro-spinal axis was always increased. He therefore speaks of an influenzal hyperemia, and considers it not of ordinary vaso-motor type, but as a process which is a forerunner of an inflammation.

The two cases reported in this paper seem to correspond to the condition described, especially by French observers, as pseudo-meningitis grippalis, which simulate meningitis in every particular, but either end in recovery or after death, show, at the most, hyperemia of the pia and brain or a permeation of these parts with serum.

Kranhals has observed after the true influenzal period a number of cases which clinically resembled closely an undeveloped cerebro-spinal meningitis, but which presented at autopsy only excessive hyperemia of the pia, without true inflammatory changes and without bacteria. In every case there was pneumonic infiltration of the lower lobes of the lungs. It seems probable that Case II. should be placed in such a class.

I cannot close without referring to the advantages gained in both these cases by the hypodermatic administration of remedies. I am positive that had we not possessed this means of exhibiting digitalin and atropin both in the numerous grave emergencies and as a routine method of stimulation, the doubt as to the etiology in the second case, at least, would have been

quite readily removed by *post-mortem* cultures—a source of intellectual satisfaction that, after all, must give place to the immeasurably greater satisfaction in saving life.

. 1833 SPRUCE STREET.

DISCUSSION.

DR. WENTWORTH.—A patient with those symptoms at that age might have had anything, and I doubt from the symptoms given whether it was a case of influenza. A lumbar puncture would have shown whether it was meningitis or not.

DR. CHAPIN.—I cannot agree with the last speaker in regard to lumbar puncture and the probability that it would have settled the diagnosis.

DR. WENTWORTH.—It would have settled whether there was a *meningitis* or not. In a question of this kind experience counts for something. In the last three or four years I have done between 250 and 300 lumbar punctures. Of the cases thus examined about forty of them were cases of epidemic cerebro-spinal meningitis and about fifty were cases of tuberculous meningitis. All the work in connection with the punctures and the microscopic and bacteriological examinations were done by me in a systematic manner. It has been my experience that in meningitis, non-tuberculous, if the puncture is done when there are symptoms of active meningitis, one almost never fails to get a positive result, provided the technique has been properly carried out. The technique counts for a great deal, and from what I have been able to read in the literature it has often been very faulty. On the grounds of my experience, I should say that in the vast majority of cases of meningitis, if lumbar puncture is correctly performed when symptoms of active meningitis are present, one will find evidences of meningitis in the fluid. A negative result was obtained in two cases out of all the number of cases of epidemic meningitis which I examined. A negative result may be obtained when the acute symptoms have subsided, and also in chronic cerebro-spinal meningitis if done later.

DR. CHAPIN.—I have performed lumbar puncture about twenty-five times, but have not made the microscopic examination myself, having sent the fluid to a good laboratory, where I suppose all the proper precautions as to technique were observed. In four or five of these cases no organisms were

found, while an autopsy showed that they were cases of tuberculous meningitis.

DR. WENTWORTH.—The case reported was not one of tuberculous meningitis, but was supposed to be one of acute infectious meningitis, and I maintain that if it were such a case and puncture had been done during the active stage, the diagnosis could have been made.

DR. WESTCOTT.—I must confess to having felt considerable hesitation in presenting the case as one of influenza. It seemed to me, however, that in the absence of other features the clinical aspect of the case was such as to entitle it to be considered as a case of influenza, especially on account of the coincident involvement of the pulmonary system, the gastro-intestinal system and the cerebro-spinal system. It is possible that the case was, in the first place, one of intestinal infection.

An Early Symptom of Measles.—Meunier draws attention (*Journal de Méd.*) to a sign of measles, which, under certain conditions, might be of extreme importance. This consists in a marked loss of weight on the part of the child before any other morbid symptom. This was present in 43 out of 45 cases observed, the loss being noticed from the third day of incubation, and becoming more marked on the following days until the appearance of pyrexia and catarrh. It is, therefore, a sign of the pre-contagious period of the disease, and is unaccompanied by any other manifestation. It seems to be independent of the age of the patient or the severity of the subsequent illness. As showing its importance the writer quotes two examples, one in which a child attended a children's party when actually in the contagious stage. It was possible to ascertain at a very early date, by means of weighing, what other cases arose from this source of infection, and by this means and by careful isolation a considerable outbreak was prevented. The second instance was that of a child admitted into hospital with slight Pott's disease. There was no pyrexia or any other morbid sign, but the child was weighed daily as a matter of routine. The third day after admission it began to lose weight, apparently without reason. After two or three days it was deemed advisable to isolate the case, and in due time a typical measles eruption appeared. It was ascertained afterwards that on the same day the patient came into hospital it was exposed to contagion from another case of measles. In consequence of the knowledge of this fact and the prompt measures taken an outbreak of measles was prevented, as no other child in the ward contracted the disease.—*British Medical Journal.*

A CASE OF FRACTURE OF THE PELVIS WITH RUPTURE OF THE URETHRA.

BY JOSEPH B. BISSELL, M.D.,

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The following case was in my service at St. Vincent's Hospital, and illustrates what nature, when judiciously assisted by surgical care and nursing, is able to do in a young and healthy subject, for very serious and apparently hopeless injuries.

John N., school-boy, nine years old, while playing in the street at 8 A.M., November 6, 1899, was run over by a truck, the wheels passing over his body. He was brought to the hospital in the ambulance a few minutes after the accident, conscious and not in a state of shock.

The scrotum, inner surface of both thighs and the hypogastrium, were contused and ecchymosed, as was also the perineum, which was greatly swollen, distended, and almost black in color.

In the right groin there was a fluctuating swelling several inches in circumference that extended down the thigh toward the buttock, and into the upper third of Scarpa's triangle. As no pulsation could be found in the popliteal and post tibial arteries, the swelling was taken to be blood extravasated from a ruptured femoral vessel.

There was no crepitus along the arch of the pubes, but a well marked unnatural mobility seemed to point to some injury of the pelvic girdle. The swelling of scrotum and perineum became rapidly more marked, and pitted very deeply on pressure. On admission the patient's temperature was 98°, pulse 82, and respiration 24. No urine was passed during the seven hours which elapsed between the time of the injury, and the operation. A diagnosis was made of extravasation of urine from rupture of the urethra, and probably of the bladder, with probable fracture of pelvis and laceration of the right femoral artery.

At 3 P.M., as the swelling in the scrotum and perineum was rapidly increasing in size, and the pulse and the temperature were rising, the patient was sent to the operating room and anesthetized. A No. 18 F. soft catheter was passed easily into the urethral canal and seemed to enter the bladder, but no urine

escaped. It was found subsequently that the catheter doubled up in the cavity of the tissues beneath the pubes.

A median incision, about two and one-half inches in length, was made into the perineum. Blood and urine flowed freely, and when the clots were cleared away it was seen that the tissues of the perineum were torn deeply in every direction. The edges of the incision fell apart, leaving a gaping wound two and one half inches long and nearly as deep, with extensively lacerated soft parts infiltrated with blood and urine.

The urethra was found to be torn transversely at about midway in the opening. The posterior portion of this canal was lying free in the wound, the surrounding tissues having been stripped entirely away from it for about one and one-half inches as clearly as if the urethra had been dissected out, and it looked almost like a cast of this portion of the urethral canal.

The catheter, which had been passed through the meatus, had, of course, not reached the posterior urethra which was separated from the anterior portion by at least an inch.

The finger carried upward into the wound on either side, came against the broken edges of the pubic arch about an inch apart which were brought in plain view by everting a little of the upper angles of the wound.

Higher still the finger, passed more deeply into the wound, came against the under surface of the skin of the hypogastric region, between the fragments of the pubic arch, where the symphysis was disjointed.

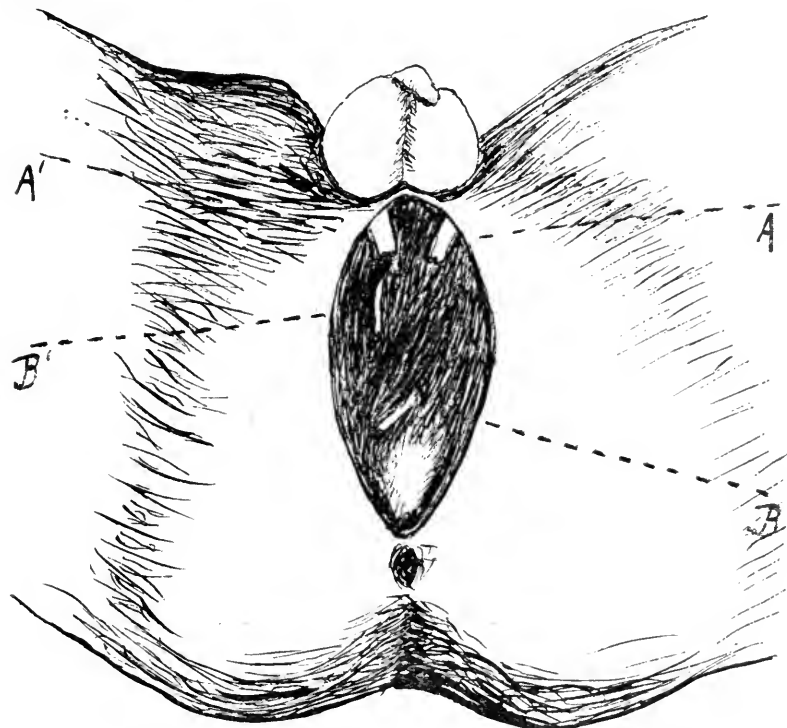
Deep incisions were made into the scrotal tissues, freeing the extravasated urine in them.

The diagrammatic cut herewith shows in a rough way these conditions. A large gap extends from close to the anal orifice below to the scrotal edge above. Below, the rectum is seen bulging into the lower angle. Just above, and to the left, is the torn end of the bladder fragment of the urethra. Separated about one and a half inch from it is the upper portion hanging down from under the broken pubic bone of the right side. The left pubic bone is seen across and some distance from it. The elevation in the right groin represents the extensive exudation over the pelvis and groin covering the femoral space and extending into Scarpa's triangle.

A small catheter passed through the posterior fragment of the urethra easily entered the bladder and drew off a few drops

of clear urine. The catheter was left *in situ* until the following morning, but was then removed, as it was constantly becoming plugged with mucus and blood clots.

The wound was packed lightly with acetanilid gauze. A broad band of adhesive plaster was bound around the pelvis to bring the broken fragments of bone in apposition and hold them there.



A' AND A.—FRACTURED PUBIC BONES. B' AND B.—TORN URETHRA.

The morning after the operation the boy's temperature was 100° F., pulse 124, and the respiration 20. He had rested well through the night and had very little pain, but there was great restlessness. Urine escaped freely after removing the catheter. Fecal incontinence was also present and the back and thighs were reddened and irritated by the constant discharges.

Up to November 14th he had constantly improved in general condition. His highest temperature at any time was 101.8° F., and at this date was under 100° F. with a pulse of 80. The wound surfaces were granulating nicely. His incon-

tinence of feces persisted, but he was able to retain some urine in the bladder.

The adhesive plaster had become soaked with discharge, and it was changed to plaster of Paris, which holds the pelvic arch very firmly in good position. The circulation has returned in the right leg. To-day (November 14), under chloroform anæsthesia, the torn urethral ends were brought together. This was done by passing a No. 18 F. glass catheter through the meatus and along the penile urethra till it appeared in the perineum and then threading it into the open end of the bladder portion of the urethra and into the bladder. While on the catheter the superior half of the circumference of the urethra was stitched together by three continuous cat gut sutures, leaving the under half unclosed for the escape of urine. The catheter was then removed. The condition left by this procedure is similar to that after an external urethrotomy. The anterior third of the large perineal wound was brought together by three silk worm-gut sutures, thus supporting the canal and relieving the tension in the sutures there.

As the pelvic bones seemed to be in good apposition and the granulations had entirely shut off the fragments from the wound, nothing was done for this but to renew the plaster of Paris splint.

November 29th.—The boy's progress towards recovery has been uninterrupted. The silk worm-gut sutures were removed a few days ago. There is firm union of the soft parts at this location, and the perineal opening has closed down to a small sinus. Urine comes entirely by voluntary evacuation, partly through this sinus, but the greater part through the urethra. There is a tender swelling, the size of a pigeon's egg, on the inner surface of the right thigh, all that remains of the exudation into the groin and Scarpa's triangle.

December 4th.—The swelling above mentioned suppurated and was opened. It is now about well. The urine passes through the urethra in a good stream and without difficulty. To-day the nurse caught the boy walking around the ward, so that his pelvic fracture is apparently united. He moved with a little awkwardness, due to the plaster of Paris.

December 7th.—The patient has still a small sinus, but no urine comes through it. The induration in the groin and thigh

has disappeared. The leg is normal. Temperature 99° F., pulse 78. Appetite and bowels good.

There is a slight obstruction at the point of union of the urethral segments, which will be relieved by gradual dilatation. Otherwise the patient is as well as ever.

I think the favorable result was due to several causes. The age and good health of the child; the early incision into the disorganized and infiltrated tissues; the short length of time between the injury and the operation; the perfect drainage, and the fact that there was nothing more done than the simple incision, and no attempt at extensive surgical interference in the primary operation; there was no wiring or nailing of the pelvic fracture, nor immediate suturing of the ends of the torn urethra.

15 WEST FIFTY-EIGHTH STREET.

Diphtheritic Leucocytosis.—Antonio Mariottini (*Pediatrics*, Naples,) has made researches on the blood of twenty-six patients suffering from diphtheria; their age varied from five and a half months to eight years; twenty-four of them had the fibrinous form and two only had the phlegmonous, and they all recovered, although several were very seriously ill. The observations were always made in the evening at the same hour, and always from three to four hours after the injections, when these were being given. In all the cases leucocytosis was present in greater or less degree, and without relation to the temperature and age of the patient; neither was it possible to discover a constant relation between the intensity of the morbid process and the leucocytosis. The leucocytosis, however, increased with the increase of the malady, and only began to decrease after the complete absorption of the exudate. The injection of anti-diphtheritic serum caused an increase in the leucocytosis. The observation of the progressive diminution of the leucocytosis, along with clinical phenomena, may be used in making a favorable prognosis.—*British Medical Journal*.



FLOYD M. CRANDALL, M.D.,
Editor "Archives of Pediatrics."
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SCORBUTUS.

During the past year the pages of this journal have contained a number of important contributions on the subject of infantile scorbutus. All of the articles have narrated symptoms of clinical significance, but a few of them have been of exceptional interest, because they have given an added value to the common, minor symptoms of the disease. The tenderness observed when handling rachitic infants is in many cases an evidence of mild scorbutus, and is frequently relieved by the administration of fruit juices and fresh food while the rachitis is still persistent.

The red and swollen gums of some bottle fed babies, who show neither petechiæ, hemorrhages, nor periosteal swelling, and whose digestive organs are normal, become healthy if a small amount of uncooked milk is used.

It is easy to make a diagnosis of scorbutus where there are subperiosteal swellings, disinclination to move the extremities,

petechiæ, bleeding gums, and other evidences of hemorrhage; but the less severe signs of the disease may be observed in the infants of well-to-do families where the milk food is carefully pasteurized. Scorbutus of the mild type is to be watched for as a cause of anæmia. The treatment is specific, and is always the same—the administration of fresh, uncooked milk and some orange juice.

The present editor assumes charge of the ARCHIVES OF PEDIATRICS, after it has been put on a firm foundation by the labors of his predecessor, who for five years bestowed upon its pages intelligent and untiring supervision. He entered upon his editorial duties with the determination to advance the standing of pediatrics in its relation to general medicine. That he succeeded, no one who reads this journal will doubt. Now that he retires from his editorial work he carries with him the best wishes of the many readers who have benefited by his opinions and who have learned to appreciate the value of the close association of pediatrics with general medicine.

To increase the knowledge of disease in early life and to give the profession the best literature of a specialty that is of the highest importance to all who desire to be reliable and successful physicians, are the sincere wishes of the editor.

With this issue the ARCHIVES OF PEDIATRICS begins its seventeenth volume. The position of a special journal is due largely to the support it receives from the medical public. The specialist contributes the results of his observations for perusal and assimilation by the general practitioner. Some of this knowledge has been sifted out by other specialists, but all in the end must meet with the judgment and approval of the man who is trying to find the best for patients who are not seeking specialists but who depend upon the family physician.

The specialist who writes elaborate scientific papers on a rare disease may not, at first, be understood by those who have never seen, nor, perhaps, heard of the disease, but if the report contains information that can be made of use the knowledge will be applied in a clinical way and add to an equipment that should be ready for every emergency.

Pediatrics is a specialty, but it is a specialty that should be part of the training of every medical student before he receives his diploma.

The ARCHIVES OF PEDIATRICS is published for the benefit of all members of the profession of medicine, for those who are not specialists, but who believe that the specialists can give them aid and assistance, and for the specialists who wish to place their knowledge where it will be brought to the test of clinical investigation and experience.

The price of the ARCHIVES OF PEDIATRICS is reduced to \$2.00 a year. The publishers are determined to maintain the standard of good paper and press work and they hope that their efforts to make the subscription rate acceptable to the reading members of the profession will be shown by an increase in the number of subscribers.

The Early Diagnosis of Measles.—(*Medicine*. Vol. v., No. 11.) There can be no question of the value of Koplik's sign in the diagnosis of measles. His observations have been numerous and carried out with sufficient persistence to warrant a diagnosis of measles where it is obtained. Taken in connection with Bolognini's sign, which is, of course, of much less value, the two form an exceedingly valuable contribution to the early symptomatology of this exanthem. Bolognini's sign is not diagnostic of measles, except in so far as measles is preceded by the development of an intestinal catarrh.

A Clinical Lecture.*

BY A. JACOBI, M.D.,

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New York.

SCARLET FEVER.

The first patient is a negro baby. It keeps its mouth open and holds its fingers, hand and arms carefully and cries when handled. Some enlarged lymph nodes are found behind the angle of the jaw. The skin of the hands and arms is peeling. This desquamation is due to a general dermatitis with an exudation into the skin, interfering with its nutrition, hence its death and exfoliation.

In reply to questions the mother admits that the baby "was red all over" three weeks ago and began to peel last week. Desquamation begins at the end of the first week of eruption, in the second week of fever. It lasts from two to five weeks and may recur, so it is not safe to send the patient to school after four weeks, as is sometimes done. Contagion is possible from the end of incubation to the end of desquamation. This should not be considered complete before the fortieth day. Sometimes there is a prolonged, or a second desquamation, and as long as it lasts no contact with other children should be permitted. That is the principal lesson I wish to impress upon you in connection with this case.

Now what can we do for the baby? Yes, isolate it. Besides isolation we can make the skin less dangerous by bathing the baby all over once or twice a day, then anoint it with lard or some bland ointment and so prevent the scales from being scattered. The mother must be very careful of her other younger child, only a year old, for if a very young baby takes scarlet fever it usually has a severe attack, but fortunately young babies are seldom attacked.

The urine of scarlet fever shows albumin in the second week, while in diphtheria and influenza it may appear in the first few days. It is a safe rule to examine the urine frequently from the second through the fourth week. Do not feel easy if you find a trace of albumin, for a bad nephritis may give but little albumin.

* Stenographic report.

That is why you will not do justice to yourself or to your case unless when you discover the faintest trace of albumin (sometimes only after long standing) you make a microscopical examination of the urine after centrifuging it. Lack of time is no excuse. You must not have more patients than you are able to take care of, as they should be cared for. Even after the fourth week the urine should be examined at least once a week. I have seen nephritis originate eight weeks after the beginning of scarlet fever.

BEDNAR'S APHTHÆ.

This patient is a nursing baby, aged four weeks. Under the tongue is a sore surface, partly on the tongue, partly on the floor of the mouth, with a grayish-yellow surface. As the child cries a similar condition is seen over a large part of the palate and alveolar ridge. There are no enlarged lymph nodes. In every baby born all the skin and mucous membranes are very tender. Over the gums the mucous membrane is so thin and delicate that as the baby cries it is made pale and bloodless by the tension of the pterygoid muscles. Every injury easily cracks this tender mucous membrane and may cause an ulcer with or without a coating of fibrin. This may occur spontaneously from crying and inanition in those babies that lose a pound or more in the first week, which should never be. This condition of the mouth is called "Bednar's aphthæ" after a very excellent writer in Vienna and Buda Pesth, some fifty or sixty years ago, who first described it. The cause of it is usually as here: the mother is very proud of her cleanliness and often roughly scrubs the baby's mouth, rubbing off the delicate epithelium. Another danger—bacteria on a healthy skin or mucous membrane do no harm but can easily enter an erosion. Suppose the nurse were consumptive and expectorated much, or there were diphtheria about. So arise those inexplicable sporadic cases of tuberculosis in otherwise healthy families. The frequent occurrence of thrush in the infant may also be due in some cases to the injuries inflicted upon the mouth which are caused by injudicious rubbing; on the other hand, careless rubbing of thrush spots in the mouth may injure the mucous membrane and give rise to these "aphthæ."

What to do? First do not be so *fearfully* clean. Perhaps it is best to leave the infant's mouth alone with the exception of the first washing with sterilized water immediately after

birth. Otherwise the mouth will be cleaned by the baby's feeding and by the practice I have recommended these dozens of years, *viz.*: to give a teaspoonful or two of water after every feeding. That will wash down all remnants of food that might get decomposed in the mouth. These "aphthæ" will get well when left alone ; but as long as there is a sore surface there is a possibility of microbic invasion; for that reason alone they should be treated. Use a soft brush in the mouth every hour with a few drops of chlorate of potassium solution, one to thirty or milder, but do not rub or be rough.

I cannot close without adding the remark that the name "aphthæ" is badly selected. The latter name should be reserved for well defined white fibrinous deposits between the epithelia (which disintegrate,) and round cell infiltration of the neighboring mucous membrane.

GEOGRAPHIC TONGUE.

There is just one thing I wish you to see in this little girl. She has toothache and periosteitis with swelling and enlarged lymph nodes, but look at the tongue and what do you see? The tongue is red in large and small spots, which are raised above the level, and exhibit the papillæ considerably enlarged. These spots are surrounded by more or less regular, branching and interlacing lines that are raised, and consist of the swollen papillæ filiformes and their epithelia. This is the so-called psoriasis of the tongue or geographic tongue. It is in itself innocent. It is often congenital and persistent. The only harm that may come from it is the possibility of microbic invasion on the surface which is not in an absolutely normal condition. It has no connection with syphilis. The harm comes when you try to cure. If it is possible at all it will take a long time and make a long bill to which you are not entitled. If you wish to try you may use a borax wash or one of chlorate of potassium, as a preventive of complications. The name "psoriasis" is not appropriate. That peculiar affection of the skin was probably never observed on the mucous membrane nor does Unna's name, "areated exfoliation" cover the case entirely, for it is less the exfoliation of the surface than the slight hypertrophy and particularly the net-like accumulation of epithelium which is characteristic.

MENINGOCELE AND DERMOID.

Look at that baby's head, and tell what you see. A pea-sized, light-colored swelling over the external occipital protuberance, somewhat like a dermoid, surrounded by coarse, thick, dark hair. On palpation it is firm, slightly movable, not tender, situated in a shallow depression which seems softer than the rest of the skull. It is a dermoid. Dermoids are not rare on the head, and are most common over the nape of the neck and on the temple; but they are very rare over the natural openings of the cranium—the fontanelles. I lately removed one from the region of the anterior fontanelle of a boy of five years which I had observed almost since his birth. The depression under this tumor here is not due to pressure absorption, for the tumor is freely movable. See, it is in the median line of the occiput, below the lambdoid suture, and it feels as if there were fluid underneath. This is cerebro-spinal fluid, in a meningocele which you may compare with a spina bifida, such as you saw lately, with a tumor on top of it. When this condition occurs on the spine, the top tumor is frequently a lipoma. What can we do for this case? Let it alone till the bones grow together and separate it from the cranial cavity. Then it should be removed, but not before. I saw a patient killed by the careless excision of a similar growth in the lumbar region. The surgeon thought it was simply a lipoma, and in making a free incision he opened the spinal canal. The clumps of coarse, dark hair, such as you see here, on the backs of some individuals are often due to small and extinct spinæ bifidæ. In the case before you the overgrowth of hair round the small tumor and over the soft depression leaves no doubt in my mind as to the presence of an incipient meningocele under the tumor. This complication is rare not only on the head but also over the spinal canal. Of the latter kind Dr. H. Wolf, of New York, collected half a dozen cases, including his own, in his inaugural thesis a dozen years ago.

Protargol for Ophthalmia Neonatorum.—F. Engelmann, of Bonn, instilled a 20 per cent. solution of protargol into the eyes of 100 infants, and announces that the almost entire absence of irritation and the positive bactericidal effect render it much superior to Credé's method. There was not a single case of secondary catarrh, and the slight or moderate secretion that followed the instillations in 80 per cent. only lasted one to one and a half days (*Cbl. f. Gyn.*, No. 30).—*Journal American Medical Association.*

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting November 9, 1899.

HENRY KOPLIK, M.D., CHAIRMAN.

(Continued from page 976, December, 1899.)

HYDRIATIC MEASURES IN THE MANAGEMENT OF THE FEBRILE DISORDERS OF INFANCY AND CHILDHOOD, WITH A PRACTICAL DEMONSTRATION.

DR. SIMON BARUCH read this paper. He held that cold water should not be classified as an antipyretic, as this had led to many erroneous views regarding its therapeutic uses. It should be recognized that all fevers had a more or less definite course. With the exception of true malarial disease, it was the sick child, not the fever, which should be treated. It was consoling to know the strong tendency of the present time to return to the expectant treatment—that treatment which assisted nature in her wise and conservative methods. He was of the opinion that judicious hydriatic treatment could be advantageous, employed as a substitute for most of the antipyretic drugs. As a general rule, a child could be completely immersed for ten minutes in a bath at a temperature of 90° F., the head and face being bathed twice during this time with water at 60°. When removed from the bath the child should be wrapped in a blanket. The bath should be repeated every three hours, reducing its temperature 5° each time until 75° or 70° had been reached, and then continuing the bath at this temperature as long as the rectal temperature of the patient kept at 103° or above. Ordinarily, under such treatment the child would fall asleep, and give every indication of improvement. In many infectious diseases there was an atonic condition of the cutaneous vessels which contributed to the tendency to cardiac weakness; hence, the great value of the hydriatic treatment, which acted directly and powerfully upon the peripheral vessels. When the toxic elements in the blood disturbed the vasomotor centres, the pulse became soft, compressible and even dicrotic, and the heart was called upon to compensate for this inadequate circulation by increasing its beat. Eventually the heart became exhausted. The superiority of the hydriatic treatment lay in the fact that this

ever-present danger of heart failure could be best combated in this way. It should be remembered that the cutaneous vessels were capable of holding two-thirds of the entire blood supply of the body. The resistance to the heart offered by the vaso-motor system in its normal condition was comparable to the friction of the driving wheels of a locomotive upon the rails—in both this resistance acted as a most important regulating agent. In the early stages of all febrile diseases of childhood the full bath described was indicated, and yet simple ablutions often sufficed to secure the desired effect. It was a serious and too frequent error to fear the shock to the system of the application to the body surface of water at a temperature much below that of the body. Experience had shown that the shock was just what was wanted to arouse a fainting woman. The common practice of passing a damp sponge over the heated skin of a fever patient was of doubtful value. Gentle mechanical irritation, as with a coarse cloth, while cold water was allowed to flow over the body, would be found far more efficient in most cases of fever. In the many fevers of childhood he was accustomed to direct that the child be sponged off hourly with water, beginning at a temperature of 90° F., and reducing it one degree each time until 60° had been reached. The effect of such treatment could be maintained by means of the “abdominal compress.” This consisted of three folds of toweling wrung out of water at a temperature of 70°, and applied snugly, being covered with thin flannel. This should be renewed hourly. In pneumonia he had found the “chest compress” at 60°, renewed every hour or two, a very valuable adjuvant. It aroused the heart, causing the cyanosis to disappear, temporarily at least. When the first effect of the bath had passed off the application acted like a poultice, and its sedative effect would be found very grateful. Parents often objected to such hydropathic treatment, but if the applications were begun at 100° F. and gradually reduced to 60°, the steady improvement in the child would ordinarily overcome all objections on the part of the family. Cold full baths were not well borne in scarlet fever.

The author concluded his paper by quotations from a number of well-known pediatricists, going to confirm the foregoing statements. He then gave a demonstration of various hydropathic procedures. He said that if the temperature was very high and the patient very much depressed, the linen compress should not be wrung out as dry as where there was less fever. Linen

should always be used, not cotton, as the latter was not sufficiently absorbent. Having wrung out the linen compress it should be laid out upon a piece of flannel of similar shape, *i. e.*, with places cut out to fit under the arms. While oil-silk protected the bed clothing it interfered with the proper action of the compress. The compress must be very snugly applied so that no air circulates between it and the skin. This guards against prolonged chilling of the patient.

THE SHEET BATH.—Where objection was made to the full bath, Dr. Baruch said he was accustomed to make use of the "sheet bath," beginning with a temperature of 100° F. for children, or 90° for adults. An old linen sheet or table cloth should be used, and it should be wrung out very lightly. The patient having been wrapped in this water at a temperature of about ten degrees lower should be poured successively upon different parts of the body, and each part rubbed with the hands until it no longer warmed up. By such a bath it was possible to obtain very nearly the same effect as from a full Brand bath.

WET PACK —The "wet pack" was a more soothing application. A sheet was rung out of water at a temperature of about 75° or 80°, and the patient wrapped up in it. Over this a blanket was snugly applied. After a short time the effect of such an application was like that of a poultice. The patient usually remained in it for about ten minutes. After this the patient should be given an ablution—rubbing with the hand moistened with water at 60° or 70°, and then finally dried.

Stated Meeting, November 9, 1899.

TUMOR OF PONS WITH CROSSED PARALYSIS.

DR. HENRY KOPLIK presented this case, occurring in the person of a five-year-old boy, who had always had a more or less ataxic gait. He began to suffer from headaches about two months ago, and since then the ataxia had become more marked. Examination showed complete right facial paralysis, an abducens paralysis and a complete hemiplegia with exaggeration of the reflexes on the left side. Within the past two weeks paresis had also made its appearance on the right side, with increase of the reflexes. The mental state of the boy had not been quite normal. The family history was free from tuberculosis and syphilis. The boy was decidedly large for his age, and this had led to the suggestion that the tumor might press upon the pineal gland.

DR. WILLIAM B. NOYES said that the case would suggest two other conditions, *i.e.*: internal hydrocephalus and tuberculous meningitis. However, the rapid progress of the case was strongly suggestive of brain tumor, and the absence of vomiting and headache was not uncommon in cases of brain tumor occurring in children. He was inclined to believe that this tumor was not in, but on the pons, for, otherwise the case would probably have terminated before this time.

A DIPPER FOR REMOVING AND MEASURING CREAM IN THE HOUSEHOLD
MODIFICATION OF MILK.

DR. HENRY DWIGHT CHAPIN exhibited a new method of removing the top-milk from the milk bottle, which was especially applicable to the needs of the nursery. It was a small cylindrical box of tin, having a vertical wire handle soldered to its side. On account of its size and shape it was easy to let it down through the neck of the bottle and dip out, and at the same time measure, the quantity of top milk which it was desired to remove. The dipper holds just one ounce of cream or one ounce of granulated sugar, and a dipper and a half represents one ounce of milk sugar. As a result of experiment and numerous assays, Dr. Chapin said that it had been found that if nine ounces were removed from the top of the bottle and were mixed together, the product would represent, with great uniformity, 12 per cent. cream. To get 8 per cent. cream it was only necessary to remove and mix 16 ounces from the top of the bottle. For example: When a cream containing three times as much fat as proteids is desired, the upper nine ounces of milk contained in the ordinary quart milk bottle should be taken out with the dipper and mixed; the result would be, fat 12 per cent., proteids 4 per cent. and sugar 5 per cent. When a cream containing twice as much fat as proteids was desired, 16 ounces should be removed in the same way; the result would be, fat 8 per cent., proteids 4 per cent., and sugar 5 per cent. As the dilution of cream four times gives a food containing about 1 per cent. of sugar, and the dilution of cream twice gives a food containing about 2 per cent. of sugar, it was necessary to add 5 per cent. more, or 1-20 of the number of ounces of food. The desired dilution of the cream is found by dividing the percentage of cream (12 per cent. or 8 per cent.) by the desired percentage of fat. The number of fluid ounces of such cream required is determined by dividing the desired fluid ounces of food by the dilution. The

sugar is represented by dividing the desired fluid ounces of food by 20, as already noted. The quantity of diluent is represented by the desired number of fluid ounces of food minus the fluid ounces of cream. Hence, to prepare 24 fluid ounces of food containing 3 per cent. fat, 1 per cent. proteids and 6 per cent. sugar, use 6 fluid ounces of 12 per cent. cream, 18 fluid ounces of diluent and 1 1-5 ounces of sugar. Similarly to prepare 40 fluid ounces of food containing 4 per cent. fat, 2 per cent. proteids and 7 per cent. sugar, use 20 fluid ounces of 8 per cent. cream, 20 fluid ounces of diluent and 2 ounces of sugar.

Dr. Chapin said that when the milk was bottled in the country it underwent what was known as "the deep setting process of creaming" before being delivered to the city consumer, and hence subsequent handling would make practically no difference in the quantity of the cream in the upper part of the bottle. This also served as a ready means of learning whether the milk had been bottled at the dairy or had been transported in cans and bottled at the depot in the city. The ordinary milk bottle would contain about six ounces of cream having an average of 17.5 per cent. fat. For the preparation of milk for infants by the method of home modification it was found most convenient to use either 12 per cent. or 8 per cent. cream depending upon the modification it was desired to make.

DR. KOPLIK remarked that the elder Dr. Meigs had advocated this dipping off of the cream and had pointed out that its average strength was 12 per cent.—indeed this physician was the father of modified milk, the great defect in his method having been that it allowed of only one modification.

DR. THOMAS S. SOUTHWORTH said that he had been especially interested in the statement that the creaming process was practically complete on the arrival of the milk at the consumer's house, for, it would then obviate the annoying delay in the preparation of the baby's food generally considered necessary in order to allow of the cream rising.

DR. A. M. THOMAS remarked that while the dipper seemed very practical, he had not personally had much difficulty in teaching mothers and nurses the proper method of removing the cream by means of a siphon.

DR. J. E. WINTERS said that as a result of a large number of experiments conducted at an agricultural experiment station in Wisconsin it had been ascertained that the percentage of cream obtained by the setting process varied considerably with the

temperature of the milk at the time. Thus if set at a temperature of 35° F., the result would be 21.9 per cent. cream, whereas if set at 50° the yield would be a 25.6 per cent. cream. For these reasons he did not see how Dr. Chapin's method could be more than approximately correct.

DR. CHAPIN replied that such errors were compensated for because of the large quantity of skimmed milk used.

THE REARING OF PREMATURE INFANTS BY MEANS OF INCUBATORS.

DR. H. D. CHAPIN opened this discussion by exhibiting the elaborate Boston incubator, recommended by Dr. Rotch, and stating that he had records of seventy-three premature children that had been treated in an incubator, forty of them in the incubator exhibited. All of these babies had died, so that he could not speak with much enthusiasm regarding the results obtained with this apparatus. It was but right to say, however, that these infants had come from wretched tenements, and, as a result of exposure, ignorance and neglect, had commonly been nearly moribund when received at the hospital. It was also proper to note that the average weight of these premature children had been only four pounds. The rule had been to keep the temperature in the incubator at 95° to 98° F., but this apparatus, like others of its kind, was faulty in that the air supply was defective. It was probable that better results would be possible with an incubator taking its supply of air from out-doors.

DR. ALLEN M. THOMAS said that his first experience with rearing premature infants in incubators dated back fifteen years. Although the apparatus employed had been crude, and the infant, born at the thirtieth week, had weighed only two pounds and three-quarters, it had been successfully reared, and had weighed twenty-one pounds at the end of the first year. He then described an interesting experience, occurring within a few months, with an infant in the Lyon incubator. The infant when first placed in the incubator, had developed a temperature of 108° F., and had gone into collapse. It had then been removed from the apparatus, and revived, but only to have the body temperature fall to 93° F. He had often observed elevation of temperature to 105° F., but never before an oscillation of fifteen degrees in twenty-four hours. After this incident the infant did well, and was now seven months old. It was impossible to make any incubator work equally well at all times of the year,

spring and summer being the most unfavorable. He had observed six incubator cases in private practice, and twenty in hospital. In addition he had statistics of forty cases treated by Dr. Adriance. Of these forty sixteen had recovered. It was extremely difficult to save a premature infant weighing three pounds or less. Handling of the child should be avoided as far as possible, and even with the best incubators a stream of oxygen could be occasionally used to advantage.

DR. EDWARD A. AYERS said that he had treated forty-one premature infants, the average period of gestation having been thirty weeks and the average weight four pounds and a quarter. All had received breast milk. Only two of the eleven treated in incubators had survived. He believed that the air chamber of the incubator should be at least six feet square, that its temperature should not exceed 95° F., and that the water tank should be relatively small. He was feign to believe that still better results would follow the attempt to rear such infants in an ordinary room, properly warmed and ventilated.

DR. J. E. WINTERS referred to his first experience with premature infants. This had been sixteen years ago, and the infant, born at the sixth month, was now alive and well. Another miserable infant, who was refused treatment at the Lyon incubator establishment, has been successfully reared on Walker-Gordon laboratory modified milk. A good prescription for modified milk suitable for such infants read: fat, 2 per cent., sugar, 10 per cent., and proteids, .25 per cent.; half an ounce at a feeding. At the end of the first week he would prescribe a milk containing 2.5 per cent. fat, and in the second week would make the fat 3 per cent. and the proteids .5 per cent. He believed that the use of sterilized or of pasteurized milk had been responsible for more deaths among premature infants than had incubators. Too much care could not be taken to avoid gastric disturbance, for such a complication was almost invariably fatal.

DR. J. D. VOORHEES spoke of his experience with incubators at the Sloane Maternity Hospital during the past two years. Of the 106 infants so treated, 29 had died within three days. Of the 77 remaining, 13 had died while in hospital, for the most part of pulmonary atelectasis. He had succeeded in ascertaining that 13 had died after leaving the hospital, so that the mortality outside of the hospital, so far as it had been possible to estimate it had been 50 per cent., and that among the cases in hospital

39 per cent. For the first few days these infants had been given half to one drachm of sugar solution, and after that breast milk, or, in some instances, modified milk containing 1 per cent. fat, 6 per cent. sugar and .33 proteids.

DR. V. ADRIANCE said that attacks of collapse of the lung were exceedingly common and fatal during the first two or three days, but rarely occurred after the tenth day. He called attention to the fact that it was not until after the fourth month of intrauterine life that alveoli developed in the lungs, and that in the prematurely born these alveoli had not had an opportunity to dilate. Besides this the ribs were so soft as to seriously interfere with inspiration, and the respiratory centre had not learned how to properly perform its function. In his opinion, the feeding of premature infants was of more importance than the use of an incubator. The necessity for a low percentage of proteids in the milk was quite commonly overlooked. It was advisable to employ a wet-nurse who had been confined about one month previously, or if the mother's milk was available, but contained too much proteid, as it usually did, the milk could be drawn from the breast with a pump and properly diluted with water.

DR. E. LIBMAN spoke of the danger of infection to which incubator babies were exposed, and instanced the occurrence, in Paris, of a series of deaths among such infants from erysipelas contracted in the incubator.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY.

Meeting of October 20, 1899.

THE PATHOLOGY AND TREATMENT OF WHITE SWELLING OF THE KNEE.

DR. A. B. JUDSON read a paper with this title. He said that with the scientific progress of the day great changes were taking place in our knowledge of disease. In white swelling of the knee it was sufficiently established that use of the inflamed joint aggravated and prolonged the disease. Arrest of motion and cessation of weight-bearing necessarily followed as a part of rational treatment. He described apparatus and presented the following patients:

CASE I.—A girl seen in September, 1899, aged six and one-half years. No pain. Slight muscular atrophy and swelling of the knee. Flexion 20 degrees to 170 degrees. An asymmetrical

gait had been noticed for about five weeks. When told that a child was threatened with Pott's disease, Dr. Fayette Taylor said: "The house is on fire or it isn't on fire." In the present case the occurrence of signs which, though slight, were well defined, established the diagnosis of osteitis. An ischiatic crutch for the protection of the limb from the weight of the body was applied. If resolution did not follow in a few weeks a fixative brace would be added.

CASE II.—Boy; November, 1897; aged four years. Duration of disease, one year. Flexion 20 degrees to 125 degrees. Ischiatic crutch was applied and three months later a fixative brace. Pott's disease appeared in the lumbar region and a spinal brace was applied in December, 1898. Knee at 2 degrees, or practically straight. Prognosis favorable. Apparatus worn with ease and convenience.

CASE III.—Girl; January, 1897; five years. Duration, three years. Subluxation was present. Severe pain. Flexion 55 degrees to 125 degrees. Apparatus applied March, 1898. Abscess appeared but had been absorbed. Subluxation persists, but the femur is super-imposed so far over the tibia that the stability of the limb would not be impaired. Knee is at 6 degrees. Prognosis good.

CASE IV.—Boy; August, 1895; one year, nine months. Duration, a few weeks. Knee at 90 degrees. Swelling and severe pain. A year later destruction of the bone was far advanced with sinuses on all sides of the knee. Subluxation. The fixative brace was applied, with relief of pain, and six months later the addition of the ischiatic crutch restored the child to activity. Prognosis good. Sinuses closing. Knee at 10 degrees.

DR. W. R. TOWNSEND said that thorough surgery would do a good deal for this patient (Case IV.). The knee was septic and, although children tolerated pus better than adults, some day a general sepsis would appear and the child would lose his life.

DR. JUDSON said that long and frequent absences from the dispensary had marked the history and had delayed recovery. If the general condition was good at the time it might have been said either that mechanical treatment should proceed or that an operation would be well borne and would hasten recovery. If the condition had been bad, as it was at times in the extreme, an operation might have been urged to save life or postponed on the ground that the chance of recovery was too

small. The patient had escaped the loss of bone by operation and the result would be recovery with greater straightness, length and stability of limb than could be hoped for after an operation.

CASE V.—Girl; January, 1889; three years, seven months. Duration, six months. Marked flexion. Fixative brace and ischiatic crutch applied. Flexion entirely reduced. Three abscesses appeared and in due time the resulting sinuses cicatrized. In October, 1894, motion was between hyperextension 5 degrees and flexion 30 degrees, and treatment was suspended. Four years later flexion was found to have returned with motion 28 degrees to 48 degrees. No symptoms. Fixative brace re-applied with reduction to 10 degrees with prospect of complete reduction. When the bones were mature their articular surfaces would have adapted themselves to each other without flexion so that the femur would rest securely on the tibia in the straight position.

CASE VI.—Girl; February, 1896; ten years. Duration, three years. Knee flexed at 35 degrees after excision. Fixative brace applied. Flexion had been reduced to 20 degrees, but had relapsed to 30 degrees from a failure to inspire the patient and her friends with enough confidence in the usefulness of mechanical means, to lead to the necessary attention to the details of treatment.

CASE VII.—Girl; August, 1895; three years of age. Flexion at 22 degrees after operation on the bone. Fixative brace applied. Flexion entirely reduced. Prognosis good.

CASE VIII.—Boy; January, 1893; seven years, six months. Duration, eighteen months. Previous treatment by a splint protecting the limb from the weight of the body and a plaster of Paris dressing. Fixative brace and ischiatic crutch applied. Crutch removed September, 1896, and brace January, 1897. Flexion 8 degrees to 75 degrees with no defect in his ordinary gait.

DR. TOWNSEND said that synovitis was present with effusion and that he would continue to give support as absorption, which was desirable, would be doubtful if the boy was permitted to run about.

DR. G. R. ELLIOTT said that this case of chronic hydrops presented quite as high a degree of atrophy as those in which the bone was unquestionably involved.

DR. JUDSON said that the presence of synovitic effusion had

been early recognized but had not reversed the diagnosis of osteitis.

DR. ELLIOTT said that the other patients also presented a high degree of atrophy above and below the joint. The merest tyro was familiar with the sudden atrophy of developing tuberculous joint disease, the cause of which was still far from being demonstrated. How could we differentiate atrophy due to disease from that due to bone disease? Atrophy in the great number of doubtful cases commended itself to us as a puzzling sign whose many expressions could not as yet be interpreted.

CASE IX.—Boy; March, 1891; fourteen years. Duration since infancy. Swelling and limitation of motion. Flexion 25 degrees to 55 degrees. Two years after application of the fixative brace the knee was straight and eighteen months later hyperextended 10 degrees. Treatment was suspended January, 1896. Almost perfect ability in walking. Flexion 10 degrees to 20 degrees.

CASE X.—Boy; February, 1885; eight years. Duration, four years. Marked subluxation. Flexion 30 degrees to 80 degrees. Sinuses. Thomas' splint for protection and a fixative brace March, 1885. An ischiatic crutch in place of Thomas' splint January, 1887. Knee hyperextended 2 degrees. Sinuses closed. Ischiatic crutch removed March, 1890, and fixative brace was occasionally worn until July, 1895. On presentation flexion was 25 degrees, a result due in large measure to failure to secure due attention to treatment at home.

DR. TOWNSEND said that although there was considerable deformity there was a useful limb. The absence of motion was an advantage as, with motion, he would not walk so well.

DR. JUDSON said that gradual, painless and complete reduction of flexion should have been well within the power of a simple lever such as the fixative brace and the ability of the limb to uphold the body would have been thereby increased. He did not object to the presence of motion if the knee were capable of full extension. In the absence of motion, ability to walk well after recovery would be increased by raising the shoe of the unaffected side by adding to its sole and reducing the thickness of the sole on the affected side.

DR. H. L. TAYLOR compared tuberculosis of the different joints. He thought that the chances of a good result were better in white swelling of the knee than in hip-joint or spine disease. The knee was more exposed to view and more easily

examined, handled and controlled. In the stage of acute exacerbation from synovial inflammation, when extreme tenderness and suffering made it impossible to move the patient, and when anodynes were powerless, a surprising degree of immediate comfort followed, immobilizing the knee and at the same time applying counter extension.

DR. R. A. HIBBS said that many patients do very well with no perineal support and showed a remarkable degree of ability on the part of a badly diseased knee to bear the weight of the body. He thought the prevention of lateral as well as antero-posterior mobility was the important element of treatment, which had not been provided for in the apparatus which had been exhibited.

DR. JUDSON thought that he would be at a loss to know how to treat this affection, or osteitis in any of the large joints of the lower extremity, without perineal support on account of the enforced rest which it brought to the joint. The apparatus had been said fancifully, but with a good deal of truth, to put the limb to bed while the child ran about. He did not wish to give up the thought that these diseases were almost entirely absent from the upper extremity for the reason that the arms were exempt from carrying the corporal weight.

DR. J. J. WALSH said that in one of the patients the pelvic band, where it rested against the body in front, appeared to make pressure which might prove to be injurious.

DR. JUDSON said that if the perineal, or ischiatic strap were too short the pelvic band would fall against the pubes, and if the strap were too long the band would strike the anterior superior iliac spine, but if the strap were of the right length the pelvic band would be held by it at such a level that it would simply make harmless pressure on the abdominal wall. The pelvic band might serve its purpose even if it did not touch the skin at all, as its only function was to furnish a support on which to hang the perineal strap which is, in effect, a crutch-head applied under the leg instead of under the arm.

DR. TOWNSEND said that the straps crossing the front of the limb might interfere with the circulation and even produce synovitis by pressure on the synovial sac or cause atrophy of the quadratus femoris muscle and tendon and thus interfere with the use of the limb after recovery.

DR. JUDSON said that it was common enough in orthopedic work to compromise the welfare of the soft parts for the safety

of the skeleton, but serious mischief was very rarely done in this way. The straps of the fixative brace were efficient and comfortable when used simply to arrest undue motion, as strong pressure was unnecessary for this purpose. When an old deformity had to be reduced, however, more pressure would be required and it was always easy to avoid doing harm with the assistance of the Yankee ingenuity which was believed always to reside in an orthopedic consulting room, and by relying on slow and gentle methods. This affection was one of the worst that could attack the skeleton of a child and a result should be considered commendable if the limb were strong and straight and useful, albeit motion might be limited or absent from the joint.

DIAGNOSIS OF WHITE SWELLING OF THE KNEE.

DR. ELLIOTT recalled the case of a young woman affected with traumatic synovitis of the knee. Pain, muscular atrophy, uniformity of joint swelling and spasm simulating reflex spasm had persisted for several months. Excision of the joint had been advised and treatment for tubercular joint had been given. The symptoms had, however, given way to complete recovery with normal limb and joint after massage, compression and mechanical support. Another woman, twenty years of age, had been treated, without relief, by fixation and extension, as for a tuberculous knee joint. The tumor increased to an enormous size and became irregularly nodulated and the pain was excessive. It was an instance of round-celled sarcoma and the patient died eight months after the onset.

DR. JUDSON said that semi-fluctuation was an important sign in such cases, caused probably by the presence of a number of deeply seated collections of fluid.

DR. C. A. ELSBERG said that syphilis and chronic gonorrhœal rheumatism affecting the knee sometimes simulated tuberculous disease and especial attention should be given to the differential diagnosis of tuberculosis and hemarthrosis, of the knee. A joint slowly filling with blood resembles in many respects a tuberculous joint. There were fluid collections, deposits of fibrin, possibly erosions of cartilage, infiltrations of peri-articular tissues, a gradual and insidious invasion, and a very chronic course. Two instances had come under his observation. In the case of a boy two years of age, a tentative diagnosis of tuberculosis of the knee had been corrected three or four weeks later by a further examination induced by the occurrence of

hemarthrosis of three of the finger joints. It was found that in the history of the family the male children of a number of healthy mothers had been hemophiliacs.

DR. HIBBS recalled a case in which pain for two weeks, and inability to walk had led to treatment by a plaster of Paris dressing for knee joint disease in a boy five years of age. Four months later the patient was seen again and was found to have infantile paralysis, having been in the hyperæsthetic stage when first examined.

DR. TAYLOR had seen infantile paralysis mistaken for acute rheumatism and for hip-disease.

OPERATIVE TREATMENT OF WHITE SWELLING OF THE KNEE.

DR. TOWNSEND said that mechanical treatment was, as a rule, so successful that operations were rarely necessary if the treatment was begun early. Ligaments and soft parts, when much diseased, should be removed by arthrectomy, free incisions being made, sometimes on both sides of the knee, with the simultaneous removal of diseased bone by the curette. The results of arthrectomy were very good and a movable knee should be expected. The excision of sinuses was probably the easiest way to get rid of them. The more complete operations of excision and amputation were rarely indicated. The former should rarely be done in children because it was likely to be followed by flexion or knock-knee and because the inevitable shortening would be excessive when the patient grew up. In a very bad case excision did not go far enough, in a mild case it was too radical. Amputation at the lower third of the thigh was a recourse in sepsis when the removal of all damaged tissue by arthrectomy or excision was impossible.

An abscess, as soon as detected, should be opened and cleansed out and, if possible, the diseased focus in the bone removed by the curette. Many patients would thus be saved from sepsis and a movable joint be secured, instead of a stiff one. Thorough aseptic precautions should be observed and communication of the abscess with the joint cavity should be avoided in operating, and spontaneous communication prevented by operating early.

An abscess showing signs of infection or a tendency to burrow should be opened. Abscesses about the knee joint containing simply the products of tubercular inflammation might not

demand immediate evacuation, but as the large majority of them burrowed or became infected, he was in favor of opening them all.

A septic joint should be freely evacuated and, as a thorough cleansing out was necessary, and as through and through drainage was often unsatisfactory, an incision should be made across the knee in front and washing out conducted after lifting up the patella. Amputation might thus be avoided in cases of streptococcus inflammation. If this failed, resort might be had to amputation. In a boy, aged nine years, who was thus treated, amputation soon reduced the pulse from 148 to 112, and the temperature from 104 degrees to 98.5 degrees and healing by the first intention and perfect recovery followed.

DR. ELLIOTT said that the presence of mixed infection should decide the question. The proper course lay between the two extremes of opening all and not opening any of the abscesses of chronic bone or joint disease.

DR. HIBBS asked for the diagnostic signs or symptoms of mixed infection.

DR. ELLIOTT said that increase of tension, tenderness increasing with œdema, and frequently redness, in short the signs of so-called inflammation were certain indications of mixed infection.

DR. TAYLOR said that there would be little need of operative surgery if these cases were seen early. Excision would be performed much less frequently in the future than it had been. Sometimes a good operation in the adult, it should be very seldom done in children.

DR. TOWNSEND would emphasize two points: first, the more thorough and careful our mechanical treatment, the less frequently would we operate, and second, if an operation was necessary it should be promptly and thoroughly performed.

PHILADELPHIA PEDIATRIC SOCIETY.

DR. E. E. GRAHAM, PRESIDENT.

At the Stated Meeting, Tuesday, October 10, 1899.

EXHIBITION OF A CASE OF BELL'S PALSY ACCOMPANIED BY HERPES ZOSTER.

DR. PETER.—The boy is ten years old. Three weeks ago he complained of pain in and about the right ear and right side of face. Three days later there appeared an herpetic eruption along the branches of the facial nerve, back of the ear, over the cheek and especially marked along the lower part of the face.

At the same time the right side of the face was puffy and drooped; the mouth was drawn to the left and he could not close the right eye.

The eruption has almost disappeared, but the right side of the face is expressionless, the mouth, even at rest, is drawn toward the left, and he can neither close the right eye nor corrugate the frontalis muscle over the eye. There is evidence of disease of the middle ear and it, probably, is from the ear disease that the inflammation of the nerve originated.

The feature of interest in the case is the presence of herpes zoster along the branches of inflamed motor nerve. The eruption is frequently seen in intercostal and trifacial neuralgias and in inflammations of other sensory and mixed nerves, but its occurrence along the fibres of a motor nerve has rarely been noted.

In a hasty glance through works by Gowers, Sachs and others, I found reference to but one case, and that was thought to be a coincidence. Recently, however, several cases have been reported in literature.

Inferences which may be drawn from the case are, first, it probably indicates a rather severe grade of inflammation in the nerve, because herpes zoster is trophic in origin; and second, we may infer that possibly the seventh nerve may contain within its sheath sensory fibres.

DR. PEARCE.—Herpes zoster, accompanying inflammation of a motor nerve, does not frequently occur, though I am not prepared to say why it should not if trophic function is so disturbed. An interesting case of *tic douloureux* was reported by Dr. John K. Mitchell, in which the second division of the fifth nerve had been entirely removed, and yet sensation was preserved in the distribution to the face immediately after operation. Dr. Mitchell's surmises were that sensation remaining in such a case as he recorded possibly proved that there were sensory fibres in the seventh nerve. Conversely it is probable that this case may in a measure also bear out this observation; and perhaps some sensory fibres may exist in the seventh nerve.

DR. ESHNER.—In further support of what both the gentlemen have said, it may be stated that subjective numbness and occasionally actual objective impairment of sensibility are sometimes observed in cases of facial palsy. This may be susceptible of the same explanation as Dr. Peter has given, namely, simul-

taneous involvement of both the fifth and the seventh nerves, but in view of the statement of Dr. McKee it seems not improbable that certain fibres accompanying the seventh motor nerve may possess sensory functions.

DR. MCKEE.—It is an unsafe thing to say that any nerve is purely motor or sensory in function. For a long time the optic nerve was regarded as a collection of sensory fibres alone; but it is now known that it contains at least six varieties of fibres, some afferent and some efferent. The facial nerve, in addition to its motor fibres, carries secretory fibres, and in the chorda tympani branch at least some special sense (taste) fibres are found.

DR. EDSALL.—I was much interested in seeing a paper on this subject of herpes with facial paralysis by Eichhorst in which he described cases under his care, the only ones of the kind he had ever seen. The literature would indicate that it is of rare occurrence, but I have always had a strong suspicion that the people who had the cases did not report them. During the last two years in my own small experience I have seen two such cases. Also in speaking with one or two of my friends I have found this to be their experience. I judge it is more common than the reports would indicate.

DR. SCHAMBERG.—The pathology of herpes zoster is pretty well known. The lesion is always a neuritis or a ganglionitis. In the case of the trifacial nerve the ganglion involved is the Gasserian ganglion. The trifacial nerve is involved almost exclusively of the cranial nerves. The case under consideration appears to me to be of considerable interest. Herpes zoster associated with facial palsy is uncommon, although a series of such cases has recently been reported in France. I think the sensory fibres have little to do with the condition; it is a question of involvement of the trophic fibres in the nerve trunk. The trophic lesions in herpes zoster vary from a simple erythema which precedes vesiculation to gangrene, in some cases. Localized gangrene accompanying herpes zoster is not a rarity. The term herpes zoster applies to all vesicular diseases occurring from nerve inflammation, whether involving the nerves of the trunk or the cranial nerves. We not infrequently observe anæsthesia in herpes zoster of the supraorbital region. The occurrence of paralysis with herpes zoster is not as common as anæsthesia.

Pathology.

Freeman, R. G. : Large Waxy Liver in Children. (Proceedings of the New York Pathological Society, 1897-1898.)

Two specimens of waxy liver in children were shown. One was from a child of six years who had been under observation in the hospital for a number of years. When the child was five years old it had an upper lumbar and lower dorsal kyphosis, with a sinus draining below the right hip. Following this, there was an abscess in the lumbar region. Two months later the child had a gastro-enteritis with a high temperature. The liver was noticed enlarged four months after the appearance of the spinal disease. Later the spleen was increased in size; there was albumin in the urine, and fluid in the abdomen and chest. Ten days before the child died the liver was found to extend as low as the umbilicus.

The autopsy showed the liver to be very much enlarged, hard and waxy. It extended from the fourth interspace to the level of the umbilicus. The spleen was enlarged and waxy; the pancreas was enlarged. The adrenals were enlarged, and apparently both were tuberculous. The kidneys were pale and waxy; the peritoneal cavity contained serum; the mesenteric and bronchial lymph nodes were enlarged; the lungs and bronchi contained mucus.

There was no active tuberculosis discovered, though one of the bronchial lymph nodes showed old fibrous tissue that might have been an old phthisical process.

The second specimen was from a child of ten years, who had had persistent and progressive anæmia for nearly a year. The hemoglobin had been only 27.5 per cent., but there had been no leucocytosis. The cause of the trouble was not suspected. The autopsy disclosed the enlarged liver that extended from the fourth space to the umbilicus; no mention was made of ascites. The spleen extended to a line drawn from the umbilicus to the left anterior superior spine of the ileum.

The left kidney was the seat of a large abscess, and the capsule was hard and thick. The right kidney was pale and waxy. In this case the right adrenal, the one on the opposite side to the kidney lesion, was tuberculous; there were also

two tuberculous mesenteric lymph nodes. No other tuberculous lesions were found, and the lungs were healthy.

No examination of pus from the kidney was made, and the microscopical examination of the abscess cavity did not give evidence of a tuberculous process. The tuberculous process in the adrenals was regarded as very rare in children.

Freeman, R. G. : Cirrhosis of the Liver in a Child. (Proceedings of the New York Pathological Society, 1897-1898.)

A Syrian boy, *aet.* ten years, was admitted to the hospital on September 10th and died on December 18th. He had had measles and pertussis some time before admission. Ten months previous there had been an indefinite illness with fever and pain. One month before admission there had been œdema of the feet and dyspnœa, and there had been scanty urine. He had not had chills.

When admitted the boy was jaundiced; the tongue was heavily coated and moist. The urine had a specific gravity of 1022, and was free of albumin and casts. There was a marked enlargement of the abdomen, dulness on percussion and an impulse. The liver extended to three inches below the free border of the ribs. Its upper border was at the fifth interspace; it felt hard to the touch. The spleen was enlarged. The heart and lungs were negative. One week after admission the boy passed a tape worm. Four weeks later the urine showed considerable albumin, and there was ascites. He had to be tapped frequently, and the fluid was always clear.

The blood showed 60 per cent. of hemoglobin and a slight leucocytosis. There was great emaciation.

The *post-mortem* examination showed there had been a general peritonitis, with a fibrinous exudate and loose adhesions, besides the fluid. The liver was large, bound down by adhesions and pushed upward by the distension of the intestine. It was pale and hard, and its cut surface was of a light color. The fibrous tissue about the vessels was very distinct. There were small purple areas on the cut surface. The spleen showed perisplenitis. It extended from the nipple line to the free border of the ribs; it was pale and rather hard. The capsules of the kidneys were adherent, and the markings were indistinct—parenchymatous nephritis. The adrenals were normal. The pancreas

was hard. There was a polypoid growth in the colon. The lungs showed chronic congestion. One bronchial lymph node was found to be cheesy and tuberculous; this was the only evidence of tuberculosis. The anterior mediastinal lymph nodes were enlarged and showed cellular hyperplasia. Microscopic examination of the liver showed marked cirrhosis, with hypertrophy of the bile ducts and very considerable increase in the interlobular connective tissue.

In the discussion that followed the exhibition of the specimen it was stated that cirrhosis of the liver is rare in childhood. Hatfield had collected 130 cases, of which 32 were alcoholic; but the present case gave no such history. Howard's 65 cases gave 11 per cent. syphilitic and 11 per cent. tuberculous. A few cases had been preceded by eruptive fevers. In view of the large number of lymphoid nodules found on microscopic examination, it was thought that the starting point of the cirrhosis had been an acute infectious process, such as typhoid fever.

Freeman, R. G. : Focal Necrosis of the Liver, Following Measles, in Young Children. (Proceedings of the New York Pathological Society, 1897-1898.)

The report was based on an epidemic of measles that gave a mortality of 13.19 per cent. Mild as it was, however, it was not free from cases showing very severe complications, such as gangrene about the mouth, ear, vulva and anus. Twenty-five of the cases came to autopsy. The first 11 cases did not give evidence of toxalbumin intoxication, and in fact it was not particularly looked for. Of the 14 other cases, 12 were specially examined, and specimens of the liver were preserved. Of these 12 cases, 4 gave distinct focal areas of necrosis of the liver. In 3 of these the areas were frequent and quite typical. In the fourth case only one area of focal necrosis was found. One case showed similar areas in the Malpighian bodies of the spleen.

The ages of the patients varied from eight months to three years. They died at periods ranging from eleven to thirty-three days after the onset of the measles. One of the patients was not very ill, and seemed to be convalescing, when the temperature rose to 104° F., râles appeared in the chest, and death followed in three days. Of the other 3 cases all had broncho-pneumonia; 1 had ulceration near the anus, and another gangrene of the

vulva. Focal necroses have been observed resulting from the toxins of diphtheria, typhoid fever, acute lobar pneumonia, malaria, streptococcus, infection and Asiatic cholera, and the lesions produced have been found to belong to the same general class. Two toxalbumins of vegetable origin, ricin and abrin, have been found to produce similar lesions. Flexner, of Johns Hopkins University, has carefully studied and investigated the subject.

The lesions of the poisons are widespread, but the gross changes found on autopsy are not characteristic. The lymph nodes are enlarged, particularly near the point of invasion. The liver is often congested and is apt to show fatty change.

On the surface as well as on the cut surface there may be seen small white or yellow dots, round or oval in shape, which are not elevated, and which vary in size from mere points to areas 10 mm. in diameter. These dots are due to areas of focal necrosis. The small areas of necrosis do not produce lesions visible to the naked eye. In other organs the changes are not characteristic. In the lymph nodes and viscera there is cell necrosis in its different stages.

In the discussion that followed the presentation of the specimen it was regarded that the focal necrosis was less marked in the cases of measles than in other diseases, *e.g.*, typhoid fever.

Diphtheria Antitoxin.—Warbenweiler (*Corr.-Bl. für Schw. Aetze*. No. 17, 1898) sums up his experience in the following words: "I who was a Saul have become a Paul, and even if I should have an unfavorable case, my new-found faith would not be shaken." He gives a short account of fifty-one cases treated with antitoxin, and thirty-eight prophylactic injections, observed during the fall and winter of 1897 to 1898. His patients all recovered. The epidemic appears to have been a severe one, whole families being attacked by the disease, but the treatment was so uniformly successful that the community (a small Swiss village) began to doubt that it really was diphtheria; because no one died. Fortunately, the writer says, their faith in science and in their doctor was somewhat restored by the fatal issue of two cases, in one of which the treatment was not used at all, and in the other only after the patient was beyond all hope. All but one of the children treated with a prophylactic injection escaped infection.—*International Medical Journal*.

Current Literature.

SURGERY.

Bazin, A. T.: Persistence of the Lower Portion of the Thyro-Glossal Duct. (*The Montreal Medical Journal*. Vol. xxviii., No. 11.)

An active, healthy boy, aged eleven years, in the summer of '84 was seized by the throat, the head being forcibly thrown backwards. No especial pain was experienced at the time, but the next morning a globular swelling the size of a marble was seen in the median line of the neck one inch below the level of the cricoid cartilage. The mass was semisolid, situated close beneath the skin, but freely separable from it. It rapidly increased in size to that of a large almond and became ovoid in shape, the longer diameter being vertical.

An incision was made into it and the contents expressed. Thereafter the sinus continually discharged a thick viscid fluid until the fall of '86, when it was freely opened, scraped, and treated with irritant injections. In five or six months it was healed, leaving a scar extending from the cricoid cartilage downwards for one and a half inches, adherent to the structures beneath and moving with deglutition.

Nothing further was noticed until the fall of '97, when, concurrent with an attack of laryngo-pharyngitis, a small hard nodule appeared over the crico-thyroid space. This disappeared in a few days, but the following spring, '98, again accompanying an attack of tonsillitis, it reappeared and increased in size to that of a large filbert nut, not tender or painful, but interfering with the wearing of a collar.

An incision was made under cocaine anæsthesia and the nodule removed. It required dissection especially at its upper side. Healing would not take place, and the small amount of discharge was very viscid. Exploration with a probe revealed the presence of a small sinus running directly upwards in the median line just beneath the skin and ending at the upper level of the thyroid cartilage. The skin was nicked at this point and a catgut drain inserted. For some weeks after the injection of tincture of iodine, the viscid character of the discharge ceased and closure resulted with no subsequent evidence of refilling.

That this was a case of persistence of a portion of the thyro-glossal duct there can be no doubt. The sudden and

rapid filling after traumatism may be explained by the probable re-establishment of communication between the duct and one or more alveoli of the thyroid gland as secretion from the walls of the duct alone would hardly produce the amount of fluid present. Another interesting feature is that fourteen years later there is apparent connection between inflammatory conditions of the pharynx and the reappearance of activity in the duct.

Armstrong, George E.: Thyroid Duct ; Its Removal. (*The Montreal Medical Journal.* Vol. xxviii., No. 11.)

Persistence of any portion of the thyro-glossal duct seems to be very uncommon. There is not much literature upon the condition. The patient upon whom the operation was performed was a boy six years of age. Nothing unusual had been noticed until about a year before the operation, when his mother found a small lump—the size of a pea—situated in the middle line of the front of the neck about 3 cm. below the hyoid bone. It gradually increased in size until it became as large as a filbert. Subsequently, the cutaneous covering became quite red and inflamed.

There was an adhesive inflammation between the cyst wall and overlying skin so that the tumor was drawn upwards, inwards and backwards when the boy swallowed. The tumor was soft and fluctuating. After a small incision had been made the tumor was scraped with a Volkman spoon. It was afterwards found that the cyst had refilled so that a second operation was performed. The duct was dissected out and removed with the cyst. There has been no recurrence.

Letulle: Chylous Cyst of the Mesentery. (*La Presse Médicale.* 1899. No. 59.)

A little girl of seven years presented the symptoms of tuberculous peritonitis, but at the operation a chylous cyst of the mesentery was discovered instead of the expected tuberculous lesion. The cyst was round, soft, and contained a milky fluid; after escape of the contents, the wall fell into folds with rugæ on its inner surface. Microscopical examination showed an endothelial lining resting upon a layer of unstriped muscle; beneath this was a loose connected tissue layer, containing many blood and lymph vessels, fat cells, and a very few muscle fibres; finally the outermost layer of the cyst wall consisted of

dense connective tissue and irregularly running muscle fibres. The fluid measured 375 c.c., was alkaline in reaction, and contained a large amount of albuminoids, some sugar, cholesterin, salts, and a large amount of fat. It was then a typical chylous cyst, due to a congenital malformation of the lymphatic system of the small intestine.

Coley, W. B.: *Congenital Hernia of the Umbilical Cord.* (*The Medical Record.* Vol. lvi., No. 19.)

Until recent times the treatment of this variety of hernia was entirely expectant, an attempt being made to retain the rupture by means of compresses and bandages. Of twelve cases, collected by McDonald, treated in this way, nine were fatal; while out of nineteen patients treated by laparotomy only one died.

The two cases recorded were the only ones seen in two years' experience at the Hospital for Ruptured and Crippled.

CASE I.—The tumor was about the size of a large orange and covered only by the dilated tissues of the cord. The operation was performed twenty-four hours after birth. The projecting portion of the cord was cut off on a level with the hernial tumor. The outer layer of the tissues of the sac was peeled off as far as possible; the edges of the skin at the junction of the root of the cord were then fastened and by a series of silk worm-gut sutures brought together after the hernial tumor had been reduced. The peritoneal cavity was not opened. At the lower extremity a small opening was made to allow free drainage in case of any sloughing. The abdomen was firmly supported by compresses. A small quantity of chloroform was used as the anæsthetic. The result two months later was satisfactory.

CASE II.—The tumor was larger than in the first case. The sac contained fluid, besides the liver and most of the large and small intestines. It was found impossible to reduce the contents of the hernia, but three weeks after the operation the baby was alive.

Murray: *The Treatment of Intussusception.* (*Liverpool Medico-Chirurgical Journal.* 1899. No. 1. *Therapeutic Gazette.* Vol. xxiii., No. 5.)

The author had a careful search made through the records of the Children's Infirmary at Liverpool, and found that out of 130,000 new patients there were only sixteen cases of intussusception, or roughly one in every 8,000. Of these sixteen cases

only seven recovered. The age at which intussusception usually occurs is somewhere between the fourth and sixth month of life.

In employing mechanical means of reduction, Murray states that it has been possible to prove that the pressure of the injected fluid should on no account exceed that equal to a column of water three feet high, since otherwise there is a very real danger of rupturing the inflamed gut. He states that chances of effecting reduction by injection are three to one against it. Therefore, he advises in all cases primary laparotomy. His personal experience is limited to three cases. In one the intussusception could not be reduced; it was excised and the child died. In the second case the bowel was reduced with great difficulty; the child might have recovered, but unfortunately, being very cold and collapsed at the time of operation, it was placed on a too hot water pillow, and its back and buttocks were so badly scalded that it died.

The third case, an infant six months old, after some hours of fretting and crying, passed blood and mucus per rectum and became collapsed. There was a distinct tumor occupying the position of the transverse colon, but not palpable from the rectum. The intussusception was of the ileo-cæcal variety and was about six inches long; it was brought to the surface through a median incision and was reduced. The infant completely recovered.

In discussing this paper Hawkins-Ambler reported the case of a boy three years old suffering from intussusception for five days. It was impossible to withdraw the incarcerated gut more than half an inch when it began to tear; therefore the ensheathing gut was sewn to the abdominal wound and opened; the gangrenous gut was divided with scissors through this opening, some three inches of it removed, and the obstruction overcome. The child died twelve hours later.

Pusey reported the case of a child aged five years admitted to the hospital in a collapsed condition, with a mass of gut protruding from the rectum. This was made out to include the cæcum and vermiform appendix, the entrance to the latter being demonstrated by probing. The gut appeared healthy but deeply congested and covered with fœtid mucus. The child was anæsthetized, held up by the feet, and the prolapsed mass was returned within the rectum and pushed up as high as pos-

sible; then hydraulic pressure was brought into play by means of funnel and elastic tube, while the intussuscepted lump was manipulated through the abdominal walls. This process was carefully and gradually carried out until the very small lump remaining rested in the right iliac region. At the end of a week no trace of the lump could be felt. The bowels were freely moved after an enema, and a year and a half later the child was fat and well.

Thorndike, A : Operations on Spina-Bifida Under Three Months. (*Boston Medical and Surgical Journal.* 1899. Vol. cxl., No. 10.)

After reviewing this subject at considerable length, the author concludes that we are not yet in a position to decide what cases require immediate operation, and in what cases it is better to wait until they are five years old. From his own experience he has come to adopt the following rules: (1) All cases that have ruptured should be operated on at once; (2) those that are covered with thin membrane which threatens rupture are safer operated; (3) cases where deep ulceration may lead to a rupture demand operation; (4) those in which you can be sure you have to deal with a simple meningocele with small pedicle.

Myeloceles, of course, are less favorable, and it is well to wait until the children are older before doing an operation, provided there is a firm covering of sound healthy skin over the tumor. In young infants there is more danger from shock and more likelihood of paralysis, due to imperfect isolation and protection of the nerves attached to the sac.

Fabrikant: Coxa Vara. (*Revue de Chirurgie*, Nov. 10, 1898. *Therapeutic Gazette*, 1899. Vol. xxiii., No. 4.)

The author has contributed a very complete article upon the subject of incurvation of the neck of the femur—the so-called coxa vara. He states that there is little difficulty in diagnosing this condition, since the symptoms are sufficiently characteristic. The symptoms are :

1. Shortening, measured from the anterior superior iliac spine to the external malleolus.
2. Absence of shortening, measured from the tip of the trochanter major to the external malleolus.
3. Upward displacement of the trochanter major together with projection.

4. Slight limitation of abduction and inward rotation.
5. Absence of pain on passive movement.

To these symptoms may be added limping, occasional pains radiating to the knee-joint, and a tendency to become easily fatigued by walking. Distinction may be made between this affection and coxitis, by the absence of inflammatory symptoms. An upper displacement of the trochanter, due to an old fracture of the neck of the femur, might lead to confusion, but in this case there would be a deposit of callus and a history of trauma.

The prognosis of the affection must be guarded as to restoration of the normal condition. During the early stages orthopedic treatment often produces great amelioration or even apparent cure. Absence of treatment at this time may lead to great crippling, as shown by a case described by Schultz. A child three years old attracted surgical attention by a limp, which increased. She had no pain, and seemed well in every other way. She simply experienced a sense of fatigue in the hip-joint, so that walking was tiresome. She was not, however, confined to her bed. Shortening of the leg was discovered by the doctors, but no therapeutic means were taken to prevent its increase. The sole of the shoe on the affected side was simply made thicker. As a result of this treatment, when the child was eleven years old, the leg was three inches shorter than its fellow; and because of functional disturbance the resection of the articulation became necessary. The orthopedic treatment consisted in massage and extension. Extension should be worn night and day. At night it is secured by plasters and weights; during the day by an extension splint.

When patients present themselves after the deformity is well marked an operation is often required. Hofmeister recommends a subtrochanteric osteotomy.

Power, D'Arcy, and Parsons, A. C.: A Case of Strangulated Inguinal Hernia in a Boy Two and a-half Years Old: Operation: Recovery. (*British Med. Journal.* 1899. No. 1996.)

The patient was brought to the Victoria Hospital for Children on the morning of January 16th with an irreducible tumor in the right groin. For three weeks previous the mother had noticed a "lump" there, but he had complained of abdominal pain for some months. On January 15th the child had much

pain in the groin. Both parents thought the "lump" was larger than it had ever been before, and on this occasion it did not "go back." During the twenty-four hours previous to admission, however, the patient refused all food, and vomited incessantly throughout the night. The bowels were opened naturally on January 15th, and the vomiting stopped at 8 o'clock on the 16th.

The child lay with the right leg drawn up, and had an anxious expression. There was a smooth oval swelling in the right groin about the size of a plover's egg. It was fairly tense, and allowed of some lateral displacement. There was no impulse on coughing, and the tumor could not be reduced. It was tender on palpation, but the skin over it was normal, and there was no abnormal condition of the external genitals.

Chloroform was administered and attempts were again made at reduction. Taxis failing, Mr. Power cut down on to the swelling, and found it was an inguinal hernia. The contents proved to be small intestine only, and the sac was nipped at the ring. The constriction was a fairly tight one, but the bowel beyond was only slightly congested. The constriction was relieved by gently insinuating the point of an aneurysm needle along the inguinal canal between the gut and the external abdominal ring. When this was done, and the anterior wall of the canal was gently lifted up, it was easy to return the gut into the abdominal cavity without any division of the constriction. The sac was ligatured as high up as possible; the free ends of the ligature were then threaded on curved needles and passed through the muscular structures of the abdominal wall, one on either side of the ring, and tied. Three deep sutures were also used, completely closing the ring, and finally the skin incision was sewn up with continuous catgut. The wound did well, and by the tenth day there was firm union.

The interest of this case lies in the complete history from the first protrusion of a piece of small intestine which became irreducible, then congested, and finally caused the ordinary symptoms of a strangulated hernia. The differences between the tissues of a child and an adult are also well defined: first, by the comparatively slight amount of congestion of the bowel which had followed upon its constriction; and secondly by the fact that the greater extensibility of the tissues allowed the inguinal canal to be dilated until the bowel could be returned without any division at the point of constriction.

Ellis, Chas. A.: Tracheotomy for Croup. (*Buffalo Medical Journal.* New series. Vol. xxxix., No. 4. 1899.)

The patient was a boy of twelve years, upon whom tracheotomy was done in an emergency without the usual instruments. A thermometer case was improvised as a tracheotomy tube. A piece of membrane measuring two inches in length was removed three days after the operation. An injection of antitoxin was administered. The boy made a good recovery.

Lorrain: Streptococcus Peritonitis in the Child. (*La Presse Médicale.* 1898. No. 79.)

An eight-year-old girl became ill with the symptoms of peritonitis, which culminated in the development of a fluctuating mass in the left iliac region. Laparotomy evacuated nearly one quart of pus, and the patient did well for several weeks, when induration was felt on the right side, and the fever returned. On making a second incision, the appendix was found to be healthy, but the coccum was bound to some coils of small intestine by moderately old adhesions. The child then made a good recovery, in spite of an attack of measles. Upon discharge the wound had healed completely. Bacteriological examination of the pus proved the presence of streptococci in pure culture, and these proved virulent to rabbits.

The case is of interest, because it demonstrates the fact that a streptococcus peritonitis exists, even though the majority of peritonitis cases are caused by the pneumococcus.

Masset: Deep Sub-Pectoral Phlegmon after Vaccination, Followed by Pyopneumo-Thorax. (*L'Echo Médical du Nord.* Vol. iii., No. 12.)

Five days after vaccination the little patient, eight months old, held the arm as if in great pain, became feverish, restless, and had diarrhœa. Papules, but no pustules, developed at the point of inoculation, and three days later the entire axilla and left side of chest were tumefied, tender and erysipelatous in color; deep fluctuation was apparent. Free incision gave exit to a quantity of pus from beneath the pectoral muscles, portions of which were sloughing. The child did well at first, but in two weeks the signs of pyopneumo-thorax developed, and death resulted from sepsis. It seems quite certain that the vaccination served as the point of entrance for very virulent pyogenic bacteria.

Andrieu: Congenital Cranial Tumor. (*Journal de Clin. et de Thérap. Infantiles.* Vol. vi., No. 44.)

A newly born male infant presented a peculiar appearance because of its bulging eyes, flattened nose and red, soft, pediculated, non-pulsating, egg-sized tumor which surmounted the head, the frontal, parietal and occipital bones being atrophied. Pressure on the mass was followed by general convulsions, and it was removed by operation. The tumor weighed twenty-nine grammes, was covered by a very vascular membrane resembling thin skin, and consisted of two lobes made up of numerous cysts containing blood and serous fluid. Microscopically the growth was an angioma without any trace of nerve tissue. The baby died, and at the autopsy the cerebrum was found to be atrophic and asymmetrical, while the convolutions were not of normal typography. The pedicle of the tumor was continuous with the cerebral meninges, but did not penetrate the brain substance. The base of the skull was normal.

Setzke, E.F.: A Case of Intermittent Hydronephrosis in a Child Successfully Treated by Operation. (*Australasian Medical Gazette.* 1899. Vol. xviii., No. 4.)

The patient, a boy ten years of age, was thrown from a horse about eighteen months before. He had always been in good health, but soon after this accident he began to complain of pains in his back, abdomen, and legs, especially in the right side.

The pains continued and the boy's health seemed to suffer visibly, and the symptoms had become marked and well pronounced. Longer or shorter intervals of good health were followed by violent attacks of indisposition. Each of these attacks was introduced by a suddenly-occurring pain in abdomen and back, mainly on the right side, and extending into the legs. It always was of an overpowering, excruciating nature, not infrequently accompanied by vomiting, and causing the patient to cry out loudly; cold perspiration used to break out, the limbs turned rigid, even a slight touch on the abdomen was unbearable, and regularly each time urination ceased, and often the bowels did not move.

Narcotics relieved the boy, until after a sudden flow of a thick, dark-brown urine—the time varying from hours to days—all pain disappeared and the child enjoyed his normal health again. These attacks occurred about once a week.

Finally during one of these attacks under anæsthesia a

tumor could be felt underneath the liver and protruding from the region of the kidney, the size of a child's fist, and being distinctly outlined; it was of a circular form, not fluctuating, and scarcely movable. The respiration did not cause corresponding movements of the tumor.

Next morning a large quantity of thick, dark-brown urine was passed, and analyzed: Reaction, acid; specific gravity, 1021; a quantity of urates: no albumin, except slime and flat epitheliums as they exist in pelvis renis and ureters; no blood or blood corpuscles; no gravel or stones. A second examination revealed the fact that the tumor had disappeared, and that the kidney was slightly movable. The following diagnosis was made; Hydronephrosis intermittens dextra, due to a ren mobilis, blocking in its movements the entrance of the ureter, the movableness of the kidney having originally been caused by an injury. This diagnosis was supported by the fact that while the boy was kept in bed only one attack occurred within three weeks. The latter reason, and the important argument that at no time blood, gravel or stones could be detected in the urine, made it highly improbable that the attacks could be traced to an occurrence of this kind, although, not being absolutely out of the question, the author decided to pay particular attention to this point. Judging from the shape and position of the tumor, an obstruction within the course of the ureter appeared improbable or rather impossible.

An operation was performed, the tumor having disappeared. Under narcosis; lumbar incision was made of about 9 cm., with a smaller cross-incision on the top of the wound. Nothing abnormal could be felt anywhere, except that the kidney appeared movable.

Having satisfied himself on this point, the author proceeded to fasten the kidney by three silk sutures, which went through its substance to the muscles of the wound. Superficial silk sutures closed the incision, with the exception of about 3 cm. in the lower angle. This part was filled with sterilized iodoform gauze with the intention of making it heal by granulation, and in this way to make the connection between kidney and muscle-wall stronger and more lasting. An antiseptic dressing covered the operated part of the body.

The wound closed without reaction. Never since the day of the operation has the boy suffered from any of the dreaded attacks.

MEDICINE.

Moizard and Ulmann: Scarlatinal Phlebitis. (*Archives de Médecine des Enfants.* Vol. ii., No. 10.)

The reported case occurred in a little girl four and a half years old, and involved the right axillary vein. When first seen, the child had had scarlet fever for seven days, the pain, swelling and œdema of the arm having appeared on the fourth day. The entire arm was involved, and the collateral circulation was well developed. Small purulent foci on the shoulder, elbow and wrist necessitated incision, but the vein itself did not suppurate. Improvement was gradual, so that the child was discharged in one month; all pain and swelling had disappeared, but some dilated veins remained on the shoulder. The scarlet fever was apparently of moderate severity, and was accompanied by transient albuminuria. Bacteriological examination of blood from one of the thrombosed veins on the shoulder proved the presence of streptococci in pure culture.

Four other cases of phlebitis occurring in the course of scarlatina were collected from medical literature. In two of these, the sinuses of the dura mater were involved, together with the jugular vein in one; this vein was also affected in another case where a phlegmon of the neck existed, and in the fourth case the iliac veins were the seat of thrombosis.

The conclusions are that phlebitis may appear early or late in the course of scarlet fever, having been observed on the fourth, and also on the fifteenth day; and that there is no absolute relation between the phlebitis and the severity of the attack of scarlatina although in the reported cases it seems more often to accompany a grave and profound general infection.

Bazin, A. T.: Hemiplegia Complicating Scarlet Fever. (*The Montreal Medical Journal.* Vol. xxviii., No. 11.)

The patient, a boy of twenty-one months, was under the care of Dr. A. A. Lefaiivre. On the twentieth day of the severe illness Dr. Bazin found the baby in the condition described. The baby was on his back with the head drawn to the right side but rotated to the left. The eyes were closed and face passive. The right arm and leg were lying straight and flaccid, the left arm across the abdomen and the left leg flexed. Respiration was quiet and regular; pulse rapid and small; pupils equal and rather contracted but reacting to light. When aroused the baby was

irritable. The right arm and leg were passive and the face slightly drawn to the left. The right extremities presented some rigidity; reflexes were increased; tactile sensation was apparently unimpaired. The ears were discharging profusely; no tenderness about the mastoid regions. The lungs and heart presented nothing abnormal; the urine was abundant and reported free from albumin. The highest temperature recorded was 106° F.

Thrombosis of the cortical branches of the left middle cerebral artery was diagnosed, for the following reasons:

1. The gradual and progressive onset of the paralysis, the arm being affected twenty-four hours earlier than was the leg.
2. The very low blood pressure which had been present for a number of days.
3. That thrombosis is the most frequent *post-mortem* condition found to be the cause of a hemiplegia occurring in the course of specific fevers in children.

The treatment adopted was entirely symptomatic, and from the first there was progressive improvement in the general condition, although the nurse reported several alarming periods of collapse with thready pulse and cold extremities, which, however, were readily overcome by free stimulation and artificial heat.

On May 1st, (thirty-ninth day of illness and thirteenth day since onset of paralysis), weak movements were noticed in the right arm and rapid improvement took place, the child standing alone on May 10th, although great wasting of the affected side had occurred.

In March, 1899, the patient was bright and active, the nutrition of the one side being fully as good as that of the healthy side. The reflexes were equal and motor power was practically perfect, a very slight toe-drag alone remaining.

At the onset of the illness the baby was just beginning to talk, and it is interesting to note that on the recurrence of consciousness this accomplishment had not been interfered with.

Bailey, Wm. : Epidemic Cerebro-Spinal Meningitis. (*The American Practitioner and News.* Vol. xxviii., No. 42.)

In the author's paper on this disease he states that he believes that something has been done by lumbar puncture. He regards it as a proper measure and often a means of good to the patient if the fluid can be withdrawn as fully and as often as may be necessary.

Josias and Netter: Suppurative Cerebro-Spinal Meningitis due to *Staphylococcus Pyogenes Aureus*. (*Gaz. des Mal. Infantiles*. 1899. No. 23.)

The case is one of primary cerebro-spinal meningitis occurring during the epidemic which began early in 1898, in Paris. The patient was a boy of eleven years, anæmic, and subject to headaches, constipation and cough. His present illness began with an apoplectiform attack, the unconsciousness lasting six hours, followed by paralysis of the right arm and leg, and of the right side of the face, with abolition of the reflexes. Opisthotonos, pain in the back of the neck, vomiting, fecal incontinence and retention of urine developed, and an eruption of herpes appeared, becoming confluent on the right side of the lips. By lumbar puncture purulent fluid was withdrawn. Death occurred on the eighteenth day. At the autopsy a thick layer of pus was found at the base of the cerebrum, extending on to the upper surface of the cerebellum. There was less exudate upon the convexity; the ventricles were dilated, and the right Gasserian ganglion lay embedded in a mass of viscid pus; while the pus covering the spinal cord was most profuse in the lumbar region. A small abscess was present in the right kidney. Bacteriological examination proved that the cerebro-spinal fluid, the heart blood, the meningeal pus and the pus from the renal abscess contained the *staphylococcus pyogenes aureus* in pure culture, and pathogenic to rabbits.

The authors have found the same organism alone in three cases of meningitis, while in two other cases the *staphylococcus* co-existed with the *streptococcus* and the *pneumococcus*.

Haushalter and Richon: Acute Leucæmia in a Child. (*Archives de Méd. des Enfants*. Vol. ii., No. 6.)

This rare affection occurred in a boy of seven and a half years, of good family history, bottle-fed, never robust, and growing gradually emaciated and pale, with enlargement of the lymph nodes. Petechial spots appeared on the legs and feet, and the spleen became very much enlarged. In one cubic millimetre of blood there were 1,829,000 red cells and 36,000 white, or one white cell to fifty red ones. The mono-nuclear leucocytes constituted 83 per cent. of the total number, the eosinophiles 15 per cent. and the binuclear 2 per cent. Blood obtained aseptically from a vein in the arm gave a pure culture of *streptococcus*

pyogenes. Death occurred three months after the appearance of the first symptoms. The autopsy demonstrated hyperplasia of the solitary follicles and Peyer's patches of the intestinal tract, of the tracheo-bronchial nodes and of the spleen. All the organs were anæmic. Cultures from all viscera remained sterile, except from the spleen, which grew the streptococcus pyogenes.

Microscopic examination confirmed the hyperplasia of the lymph nodes and spleen, and demonstrated the infiltration with leucocytes of the interlobular connective tissue of the liver.

As in all previously reported cases, the actual cause of the disease remains obscure. The streptococcus infection may have been a secondary one, and its point of entrance the mouth, as the teeth were carious.

Morse, J. Lovett: The Frequency of Rickets in Infancy in Boston and Vicinity. (*Boston Medical and Surgical Journal*. 1899. Vol. cxl., No. 7.)

DR. MORSE read a paper on this subject before the Suffolk District Medical Society of Boston, of which the following is an abstract:

Four hundred consecutive infants under two years of age, medical out-patients at the Infants' Hospital, were examined for evidences of rickets. Eighty per cent. showed more or less marked signs. About 40 per cent. of the cases were Russian and Polish Jews. Only 12 per cent. came from the southern races. Breast milk was a part of the diet in 43 per cent. and formed the whole in 18 per cent. The only influence acting on all alike was improper hygienic surroundings. These therefore must be considered as the most potent cause of rickets in Boston and vicinity.

Eighty per cent. of the children under two years of the poorer classes of Boston and the adjacent cities have rickets. A rosary is not a normal phenomenon, but is an evidence of rickets. It is a constant symptom of rickets. It is the earliest symptom to develop and in 40 per cent. of all cases under two years is the only symptom. The next most common symptom is delayed dentition. Other symptoms, while they may show themselves at any age, do not, as a rule, develop earlier than the tenth month. The cause of rickets in Boston and vicinity is to be found in improper hygienic surroundings rather than in race or diet.

DR. ROTCH.—I think Dr. Morse's paper on rachitis in early life is the most thorough on this subject that has yet appeared. I cannot give any figures, but my impression also is that there is more rachitis in this vicinity than some years ago, and especially among the younger subjects in their first and second years. It is quite difficult sometimes to detect rachitis, as Dr. Morse has said. The rosary is a very important sign to be looked for, and I think that we often overlook these rachitic changes simply from being unable to get at the rosary; it may be small and the infants may be very fat, as they were when condensed milk was so generally used. In the past experience of the hospital, where condensed milk was almost universally used, there was not so much rachitis detected, but I always believed that rachitis was present. They became so fat, from the high percentage of sugar used in condensed milk, that the bones were covered, especially the epiphyses, so that they could not be easily felt. Then, again, we should remember that there are probably a number of cases of rachitis that are not detected by the rosary.

Rickets is generally considered to begin at four or five months, and not earlier. As to susceptibility, statistics show that certain races are susceptible; whatever the etiology of rickets is, the race peculiarities have something to do with it. Negroes and Jews are more affected than other races. Another interesting thing in connection with infants under three or four months is the condition that we know as infantile atrophy; whether a disease or not, it is supposed to begin in the early period, and at that time rickets is a rare disease. It is a curious thing that those cases that have infantile atrophy well developed, even when several months old, have no rickets. They live in the same hygienic condition and have the same food as these cases that have rickets, which is a hard thing to explain; but it is a fact that in these cases of infantile atrophy one rarely finds rickets, even when they are a number of months old.

DR. TOWNSEND.—I think it is rather difficult to draw sweeping conclusions as to the etiology of rickets. I was very much interested in what Dr. Morse said about the hygienic surroundings, etc. They differ from the conclusions reached by other observers as to the effect of race. Dr. Snow, of Buffalo, made some interesting observations two or three years ago. He examined some 200 cases under three years of age, and found that among the Italians 70 per cent. were rachitic, whereas of the

other nationalities only 11 or 12 per cent. were rachitic. It is certainly the case that rickets impresses one as being much more common among the Italians and negroes than it is among the Irish and other more northern races.

One conclusion which Dr. Snow reached as to the etiology of rickets was that it occurred among southern people brought to a more northern climate. He did not believe that it was due necessarily to unhygienic surroundings, because the Irish and some of the other more northern races have just as bad surroundings as the Italians, and, furthermore, the Italians in their own southern clime in Italy are very free from rickets.

A year or two ago I took occasion to look up cases of rickets in the Out-Patient Department of the Children's Hospital, and with the help of my house-officer recently I have completed it to August, 1897, from 1883. The number of cases of rickets diagnosticated in the out-patient records is of course very small as compared with Dr. Morse's statistics, because the diagnosis was made where it was an evident case. They were not looked for especially. There were 4,091 patients in the Out-Patient Department of the Children's Hospital during that time, and of these 276 were cases of rickets, that is, a percentage of 6.7. The majority of these cases were between six months and three years of age. Two were noted as under two months of age.

There is one point on which I should take issue with Dr. Morse, and should question whether it was not possible that the diagnosis of rachitis from the rosary alone is perhaps misleading. In one half of his cases, as I understand it, the diagnosis of rickets was made from the existence of rosary alone. I know I have been tempted to think there was a rosary in emaciated cases where I afterwards concluded there was none. As Dr. Rotch said, there are many cases of marked rickets where there is scarcely any rosary to be felt outside, but where *post-mortem* examination shows enlargement of the epiphysis inside.

Delayed dentition is sometimes seen in babies in the best hygienic surroundings and fed in the best way, where there is no suspicion of rickets, and early dentition is sometimes seen among the rachitic.

As to the food as an agency in rickets, I tabulated as well as I could the food of these 276 cases, and I found the analysis as follows: 4 entirely on breast milk; 37 had never nursed; 32 had nursed at least fourteen months and had been additionally

fed; 52 nursed and fed from an early period, and 50 had everything from the table; 24 fed on condensed milk, and patent foods were used in 60 cases. Those fed on patent foods and condensed milk all suffered from a deficiency of fat, a lack of which has proved experimentally in the case of animals to be a cause of rickets.

DR. WENTWORTH.—There is this to be said of the patients who attend the Out-Patient Department at the Children's Hospital: their hygienic surroundings are better than those of patients who attend the Infants' Hospital. A great many of them live in the suburbs and are more comfortably situated than the patients that attend the Infants' Hospital; so that statistics drawn from the two sources are not comparable.

DR. VICKERY.—Some years ago a paper was read in this room on the subject of rachitis occurring among the negroes in Boston, and the author, Dr. H. C. Haven, thought that the disproportionate frequency of the disease among the negroes was due to something else than their food. He considered that the cause was racial degeneration, under climatic conditions so different from those of tropical Africa.

DR. ROTCH.—It has been suggested that syphilis was a factor to be considered in the colored race suffering from rachitis in our community. That paper was based on cases in the West End. We know that syphilitic subjects have a tendency to rachitis.

DR. VICKERY.—About the southern races, that is, races out of their natural habitat, my impression when I studied in Germany and in Vienna was that there was a very large proportion of the poorer children of Austria and Germany rachitic in their native place. I should like to know if Dr. Rotch thinks that is true of Germany.

DR. ROTCH.—There is a very large number there, and I was very much struck by it in coming home. I supposed rachitis was rather a rare disease here, but of late years it seems to be more frequent. There was a large number of cases of cranio-tabes in Germany, but I think it is rather rare here.

DR. MORSE.—When I came to work up these cases I found much reason to regret that I had not kept as careful notes on the cases that did not have rickets as on those that did, because I think they would have given us interesting comparative figures as to diet and race. As to diet, I did not wish to be under-

stood as saying that diet does not have anything to do with the causation of rickets, because I think it does, but it seemed to me that in this series of cases it was a comparatively unimportant factor and that the hygienic surroundings were the most important.

As to race, I said that these figures must not be taken as denoting the relative frequency of rickets in the various races; they merely show the relative proportion of the races that attend the clinic and make up the poorer classes. These cases represent 80 per cent. of all the cases under two years that came to the Infants' Hospital. Now it seems to me that in all probability they are fairly representative of the proportions of the different races—that is, those figures cannot teach us anything. As to the proportion of cases whose ancestors came from northern or southern climates, only 39 of these 318, giving the most liberal interpretation to southern climates, came from southern climates; the rest came from climates at least as far or farther north than Boston.

As to the criticism on the rosary, the reason I undertook the study of these 400 cases was to find out whether a rosary was, or was not, a symptom of rachitis. My conclusion is that it is a symptom of rickets, and that a rosary is not a normal thing in infancy. For, in the first place, a certain number of babies do not have rosary. Then the fact, which I took the trouble to find out from the men who are working especially on the bones in Boston, that bones which show such a slight degree of beading that it cannot possibly be recognized during life by external examination show microscopically very marked signs of rickets. In order not to call anything a rosary which was not, I accepted only those which could be felt distinctly in both diameters of the rib, that is, vertically and horizontally. When it is said that in the Back Bay babies one finds delayed dentition and a rosary, my idea is that those babies have rickets in a mild form, and that the error is in not calling the condition rickets. It seems to be a very unusual thing to find a rosary in cases of infantile atrophy. The explanation no one knows. One suggestion is that possibly infantile atrophy means impaired nutrition, while rickets means disturbed nutrition. This, of course, can only be taken in a very broad sense.

DR. TOWNSEND.—I think other things must be taken into consideration in the diagnosis of rickets. One is sweating of

the head. I think where the baby cuts its first tooth as late as the tenth or twelfth month, and is well nourished and does not have sweating of the head, it would be unwise to call that a case of rickets. The point I wish to make about the rosary is, that it is often difficult to say whether a rosary is present or not, and one ought to take other signs and symptoms into consideration before making a diagnosis of rickets. With an undoubted rosary, the diagnosis is, of course, plain.

DR. WENTWORTH.—It is not so much delayed dentition as irregular dentition that is a sign of rickets. Some normal babies have teeth at six or seven months, and some at ten or eleven, or later; it is not that their teeth come at a certain time, but that the intervals are irregular. As I understand it, that is the diagnostic point about dentition; I mean that where dentition is interfered with it is not delayed dentition that is the sign, it is the irregularity in dentition. In a normal baby dentition may be delayed.

DR. MORSE.—I merely want to repeat that a normal baby does not have a beading at the junction of the cartilage and the rib which can be felt. No matter how thin a baby is, or what its condition of nutrition, if it has not rickets there cannot be anything felt.

D'Espine and Jeandin: Vaccine Généralisée à Forme Eruptive. (*Archiv für Kinderheilkunde.* (B. xxvi., H. v. and vi.)

A strong, healthy girl, eleven months of age, was vaccinated on both arms, with two other children, who showed normal vaccinia. The lymph used was obtained from the calf. On the fifth day pustules appeared on the arm; these ran the typical course. Simultaneously with these pustules, others made their appearance on the face and body, spreading all over the body, so that by the ninth day the eruption had become general. A few belated ones appeared on the legs and on the mucous membrane of the mouth as late as the eleventh day. By the nineteenth to the twenty-first day the scabs that had formed, dropped off. During all this time the general condition of the patient was excellent, although the child had a slight temperature from the ninth to the eleventh day, this reaching 38.8° C. (102° F. on the morning of the tenth day by rectum). Inoculation on the calf proved the eruption to be genuine cow-pox.

These general, noncontagious exanthemata are reversions into a former type of the disease and form a connecting link

between the localized eruption of cow-pox and the general contagious form of the disease in man and in the sheep. This non-contagious form is also represented by horse-pox. The lymph obtained from the pustules occurring in this disease, was used in Algiers for a long time to immunize human beings against small-pox, and was often followed by a general eruption.

Northrup, W. P. : Pneumonia in Infants ; Diagnosis and Treatment. (*The Medical Age*. Vol. xvii., No. 20.)

Dr. Northrup, in a clinical paper, offers the following:

SUMMARY.—The best three signs of obscure beginning pneumonia in infants under two years are:

1. Disturbance of pulse-respiration ratio, so that it departs from the normal of four to one and approximates three to one.
2. Fever: continuous, intermittent, or remittent.
3. Râles: fine.

TREATMENT.—(1) Hygienic: fresh air. (2) Dietetic: avoiding indigestion and flatulence. (3) Hydropathic: baths or packs.

Poultices, for pain only, should be used intermittingly.

Heart stimulants: strychnine, nitroglycerine, alcohol, digitalis, when needed.

Antipyretics (coal-tar products) are mentioned only to condemn them absolutely.

Hilbert, P. A. : A Case of Tetanus Successfully Treated with Antitetanic Serum. (*New England Medical Monthly*. Vol. xviii., No. 11.)

A boy of twelve years was scratched on the feet by fence wire. Five days afterward he complained of stiffness in the muscles of the neck and jaw and on the following day was unable to open his mouth wide enough to permit the introduction of the little finger. The boy complained of sharp, shooting pains which extended from his legs upward to the back of the neck. He was very nervous and sleepless, and had a temperature of 100.5° , the pulse rate being 110.

Ten cubic centimetres of antitetanic serum were injected seven days after the injury. A second dose was administered in twelve hours and a third dose of the same quantity after twenty-four hours. Great improvement was noted on the following day. In six days the rigidity had disappeared and he was able to take substantial nourishment. During convalescence there was an irregular and frequent pulse.

Johnson, W. L.: Purpura Rheumatica. (*New York Medical Journal.* Vol. lxx., No. 15.)

Dr. Johnson gives the causes of purpura as (1) Mechanical, including nervous, from the vaso-motor derangements causing changes in blood pressure, etc.; (2) Toxic in general, as drugs, toxins and organic matter; (3) Purpuric disease, specific and communicable.

A case of a well nourished breast-fed baby six months old is reported. He had a fever with a papillary rash; most marked with the fever. Petechiæ also present. The baby had a systolic murmur over the mitral area. Two days later the rash was decidedly purpuric. The temperature was 102° F. The following week it was noted that the baby had a swelling of the left knee; murmur loud. Excessive perspiration. One month after the first observation the swelling of the knee that had disappeared returned. Eventually the baby made a good recovery, but the systolic murmur remained.

No plasmodia were found in the blood, and the character of the sweats did not suggest rheumatism pure and simple. There was no discoverable infection. Antipyryn gave the best result in treatment as the salicylate and quinin were of no value.

HYGIENE AND THERAPEUTICS.

Carter, Howard : Milk Inspection for the City of St. Louis. (*St. Louis Courier of Medicine.* Vol. xxi., No. 3.)

Dr. Carter, the milk inspector of the city of St. Louis, reported 331 analyses of which 176 or nearly 53 per cent. were found adulterated with water, the amounts varying from 5 to 45 per cent. Although previously a commercial fraud it was regarded as most dangerous because of the epidemics of typhoid and other fevers that have been traced to its source. Formalin was found to be used more than boric acid as a preservative for milk. Ice properly used should make preservatives unnecessary. Butter fat was found to vary greatly, 4.8 per cent. being the highest and 1 per cent. the lowest.

The reporter urged that the standard of pure milk should not be less than 12.50 per cent. total solids: 3.50 per cent. butter fat, and 9 per cent. of milk solids not fat.

Sonter, J. Francis : Ichthyol in Whooping-Cough. (*The New York Medical Journal*. Vol. lxx., No. 20. From *Australasian Medical Gazette*, September 20, 1899.

Ichthyol was given in pill form in doses of one grain increased to two, three and four grains, every four hours. Marked improvement was recorded in fourteen cases and no unpleasant effects were observed.

Greanellé, W. J. : Palatable Quinin Mixture for Children. (*The New York Medical Journal*. Vol. lxx., No. 18.)

- | | | | |
|-----|----------------|---|---------------------------------------|
| (1) | R _x | Quinin hydrochlorate, | gr. v.—gr. x. |
| | | Alcohol, | 3 i |
| | M. | | |
| (2) | R _y | Oil of Cinnamon, | } each
M. xxx.—xi.
q.s.
3 i. |
| | | Oil of Anise, | |
| | | Magnesia, | |
| | | Water, | |
| | M. | —Let stand for some hours; filter. | |
| (3) | | Mix 1 and 2 and add | |
| | | Simple syrup, | 3 iii. |
| | | Carmin or cochineal solution, | gtt. v. |

Dose one or two drachms as directed.

Saccharin in small quantity helps to disguise the larger doses of quinin.

(The oils must be rubbed thoroughly with the magnesia and a little water, the quinin salt must be the hydrochlorate.)

Hopkins, S. D. : Treatment of Chorea. (*Denver Medical Times*. Vol. xix., No. 5.)

Rest and antipyrin are regarded as giving the best results in chorea. Dr. Hopkins states that in all except the mildest cases, absolute rest in bed, day and night, is insisted upon from the first. If he had to rely upon one method of treatment in the management of chorea, to the exclusion of all others, he would unhesitatingly choose absolute rest in bed. To begin treatment he is in the habit of ordering as many grains of antipyrin, three times daily, after taking food, as the child is years old, and increases the dose one grain each day until all violent movements stop, when he begins with one drop of Fowler's solution after each meal, well diluted in water, and increases the dose one drop each day until the point of tolerance is reached. About the second or third day after the arsenical treatment has been added, the antipyrin is given only once each twenty-four hours, and the time for its administration is usually about eight or nine o'clock in the evening, thus securing a comfortable night

for the patient. After all but the most occasional twitching has stopped, the antipyrin is discontinued, and syrup of the iodid of iron is given in connection with arsenic. He has given a child of eight years twenty grains of antipyrin three times daily, without the slightest apparent depression or untoward effect.

If the patient has cardiac dilatation or a valvular lesion, antipyrin should not be given, although in the latter condition he usually substitutes phenacetin combined with caffein citrate, with very gratifying results. When fever is present the effects of antipyrin are so depressing that he uses chloral, but not in as large doses as the antipyrin. While antipyrin is being given the patient must be kept in bed; for if the child is allowed to run around great depression is apt to follow.

Kolisko, Alfred: Backhaus' Milk for Infants and Children.
(*Archiv für Kinderheilkunde.* (B. xxvi., H. v. and vi.)

The following method is employed in the production of this food. The milk from different breeds of cows is mixed and passed through a centrifuge, to separate the cream from the milk and to remove any impurities that might have gained access to the milk, notwithstanding the great care used in handling. Three grades are produced, two for infants, the third representing full milk in its composition. After separating it from the cream the milk is exposed to the action of a mixture of rennet, trypsin and sodium carbonate, which are combined in such proportions that the trypsin will have converted at the end of thirty minutes 30 per cent. of the casein into soluble albumen. By this time the action of the rennet coagulates the balance of the casein and thus arrests the action of the trypsin. The temperature of the mixture is now raised to 80° C. (176° F.) by the introduction of steam into it. At this temperature it is kept for five minutes. At the end of this time it is strained through cloths and mixed with half its volume of water, one-fourth its volume of cream and the necessary amount of sugar of milk. It is finally put up in bottles holding 125 grammes (about 4 oz.) and sterilized.

The second grade, for older children, is obtained by mixing equal parts of milk and water with half the quantity of cream and with milk sugar. This is put up in quantities of 200 grammes (about 6½ oz.)

The third grade, in bottles holding 300 grammes (about 10 oz.) represents cow's milk in composition, modified by the above

mentioned process. The composition of the three grades is given as follows:

Fat,	-	-	-	-	3.1	3.2	3.3
Sugar of milk,	-	-	-	-	6.0	5.4	4.8
Casein,	-	-	-	-	0.6	1.8	3.0
Albumin,	-	-	-	-	1.0	0.3	0.5
Ash,	-	-	-	-	0.4	0.4	0.7

The milk has been tried at the Wiener allgemeine Poliklinik by Fröhwald in a series of twenty cases, the histories of which are given by the author. With the exception of six, these children have been under observation for more than two months. When first seen the children were all suffering from different forms of digestive disturbances, and from malnutrition; some were suffering from severe marasmus and most of them passed through some other disease while they were under observation. Three of the infants took the breast in addition to the Backhaus' milk for periods of two and three weeks, when they, too, had to be put on the artificial milk entirely. The children took about six bottles of number one up to four weeks, seven to eight to the end of the second month. From the middle of the third month the second degree was gradually substituted, while number three was used only in the case of an older child. A daily gain was observed of from 18 to 30 grammes (about $\frac{1}{2}$ to 1 oz.). In private practice and in healthy children a gain of 50 grammes (about $1\frac{1}{2}$ ozs.) is not rare. The milk keeps well.

Joseph, Max: The Treatment of Eczema. (*Archiv für Kinderheilkunde.* B. xxvi., H. v. and vi.)

The author blames too frequent washing and bathing as the causes of many cases of eczema. Strongly alkaline soaps add to the injury done by the water. He recommends bathing only once a day; the skin to be cleaned with oil and absorbent cotton whenever necessary. A neutral soap only is used in the bath. In the erythematous stage of eczema Joseph permits the daily bath in some cases followed by the use of a bland powder (e.g. starch). A thin film of vaseline will cause it to adhere better. In the moist stage no water at all is used.

Here the best application is a lotion composed of one ounce of liquor aluminii acetici to half a pint of water, the compresses put on very wet and changed every hour or two. As soon as the skin looks dry and tense, ointments are indicated. The author uses a modification of Lassar's paste, leaving out the salicylic acid on account of its keratolytic action. Over the

ointment a light dressing is employed. These dressings are renewed twice a day, without previous removal of the old salve. Once only in three or four days are the affected parts cleaned with oil and absorbent cotton. A similar treatment the author uses for weeks and sometimes for months, using no baths until the time when recovery is fairly started.

In mild cases of eczema or in convalescent cases Wilson's ointment is excellent.

R _x	Tr. Benzoin	-	-	15.0	(3 iv.)
	evaporate to	-	-	7.5	(3 ii.)
	Ung. aq. ros. ad.	-	-	100	(3 iii.)
	Zinc. oxid.	-	-	10.0	(3 ii.)

M.

Tar is employed only after all redness has disappeared. It is best used in the form of oil of cade added to the strength of 5 per cent. to the modified Lassar paste, and increased to 10 per cent. only if well tolerated. At times when the oil of cade is not well borne, the liq. carbonis detergens does very well. A 2½ to 5 per cent. solution is painted on in the morning and the place covered at night with the zinc paste dressing.

Eczema of the scalp is often caused by pediculi. A solution of corrosive sublimate is the best to kill the parasites. If this is used with vinegar the removal of the nits will be greatly facilitated. Corrosive sublimate 0.5, vinegar 250 is recommended. After this solution has been used twice on the first day, the following salve can be used at once or after employing the acetate of aluminum solution for a few days to get rid of the irritation.

R _x	Hydrarg. sulfurat. rub.	1.0	(gr. xv.)
	Sulf. sublim.	- - 4.0	(3 i.)
	Ol. bergamott.	-	gtt. xxv.
	Vaselin flavi.	- ad. 100	(3 iii.)

M.

Floeckinger, F. C.: Management of the Respiratory Complication of Measles. (*American Therapist.* 1899. No. 6.)

The author reports an epidemic of measles in which the bronchial and lung complications were severe in at least 65 per cent. He found most satisfaction in their treatment in the use of heroin, which was administered in doses of $\frac{1}{80}$ to $\frac{1}{30}$ of a grain, according to the age of the child. A diminution of the irritating cough was noted within a short time, the respirations became more prolonged and deeper; and on the second day an increase of expectoration was observed. In a few instances

vomiting occurred after taking the drug, but this happened only in cases which there was weakness of the stomach and disturbances of the digestive functions, and disappeared after removal of these disorders. In a few cases of broncho-pneumonia with marked irritating cough and dyspnoea, heroin was ordered in combination with salicylate of sodium. This mixture in combination with small doses of strychnia sulphate the author believes aided recovery. He regards heroin as an excellent sedative in diseases of the respiratory tract.

Lacroix: Treatment of Whooping-Cough by Inhalation of Medicated Oxygen. (*Gaz. Heb. de Med. et de Chirurg.* 1898; *International Medical Magazine.* 1899. Vol. vii., No. 5.)

The author presents the results of his experience in treating twenty-five cases of whooping-cough by inhalations of oxygen saturated with bromoform, bromide of camphor, and cherry laurel water. He uses a reservoir called a saturator, which contains pieces of pumice holding the medicaments over which the oxygen is passed. A mouthpiece is placed over the patient's mouth and the gas impregnated with the vapors is thence inhaled. M. Coyon also treated over a hundred cases in this manner and M. Dutrambley has employed a similar method. The advantages are that the paroxysms of cough are modified, which diminishes both their number and intensity. Complications are obviated and the organism is strengthened and enabled to resist the invasion of other infectious diseases which so frequently follow pertussis.

Shepard, Charles H.: Diet of Sick Children. (*Dietetic and Hygienic Gazette.* 1899. Vol. xv., No. 3; *Medicine*, Vol. v., No. 5.)

The author quotes Springer, of Berlin, who says that extracts from cereals are the best bone builders, and therefore well adapted to the growth and perfection of children. Here is his recipe: "Take two soup-spoonfuls each of corn, barley, oats, rye, maize, and bran, boil in four quarts of water three hours, allow to cool, and then strain. If necessary, add enough water to make a quart. A palatable, yellowish fluid is obtained, which may be improved by the addition of milk for children." The results of this food, with several children placed under his care, surpassed his highest anticipations. This preparation has the merit of being equal in value to any of the extensively ad-

vertised food nostrums of the day, and is much less expensive. Foods prepared after secret formulas should no more be encouraged than medicines so made; some of them are simple frauds, particularly the so-called dietetic foods, and others are dangerous to the sick and well alike. The worst of all are the alcoholic beverages masquerading under the name of malt. The best and most economical food materials for universal consumption are those in common use, and which need no fancy names. One authority says that in an attack of summer diarrhœa in children under two years of age all albuminous and starchy foods should be prohibited. It is the mature opinion of expert physicians that at such times milk and milk foods only tend to furnish fresh fuel for growth of pathogenic bacteria in the gastro-intestinal tract. Give instead nothing but toast-water or barley-water for thirty or forty-eight hours. They contain plenty of nutrition for such conditions, and rarely produce any disturbance.

Weill: The Treatment of Heart Disease in Children.
(*Revue de Thérapeutique Médico-Chirurgicale*. 1898. *Therapeutic Gazette*. 1899. Vol. xxiii., No. 2.)

The author first refers to congenital lesions in which we are utterly unable to do any material good; but in acute endocarditis in which there is danger of the development of severe valvular lesions, preventive medicine can do much. The endo-pericarditis of rheumatism is affected little if at all by the salicylates, yet it is in rheumatism that these lesions most frequently occur. In typhoid fever with a tendency to heart disease the cold bath is exceedingly efficacious as a prophylactic against cardiac lesion. Antidiphtheritic serum is to be used as a prophylactic in diphtheria.

He thinks that salicylate of sodium is of little avail as a direct remedy in rheumatism of the heart, but its use shortens the attack and is thereby of value. It is well borne by children, and rarely produces vomiting, vertigo, or roaring in the ears, if given in the dose of 7 grains a day in the first year of life, 15 to 30 grains up to the third year, and 40 to 70 grains at ten years. The diet should also be carefully attended to. Milk, soups and absolute rest are to be resorted to, the heart quieted if necessary by the use of small doses of bromide of potassium and digitalis, and insomnia, if marked, combated by sulphonal or trional.

After a valvular lesion has become chronic it is necessary to improve the condition of the heart muscle by a stimulant and nutritious diet. The patient must be continually in the fresh air. Rubbing must be resorted to to improve the peripheral circulation, and gymnastics with Swedish movements and hydrotherapy employed. Care must be taken to exercise all the muscles of the body, but not to tire them, and violent exercise must be absolutely prohibited. Such games, for example, as football and tennis, and long walks, are not to be permitted. Bicycle riding may be utilized in moderation, but great fatigue must not be allowed.

Regular hours must be insisted upon for meals and for retiring. Severe mental work ought also to be prohibited. In paroxysmal dyspnoea coming on in heart disease absolute rest, counter-irritation in the form of a mustard plaster over the precordium, and the administration of diffusible spirits, are to be resorted to. Subcutaneous injections of camphor, caffeine and ether are useful, and inhalations of oxygen and nitrite of amyl may be used.

Should great cardiac excitement be present digitalis or caffeine may be needed. If cough is present the administration of sedative substances, such as iodide of ethyl, pyridin, antipyrin and bromoform, may be given. The caffeine may be given in the dose of 1 to 2 grains a day to a child of from two to five years, and 4 to 7 grains a day to a child of seven to fourteen years.

Young, A. G.: Formaldehyde as a Milk Preservative.
(*The Sanitarian*. Vol. xlviii., No. 361.)

At the meeting of the American Public Health Association Young stated that formaldehyde tended to impair the nutritive value of milk; it interfered with the digestive processes; under certain conditions it might cause dangerous and even fatal results, and its use as a preservative should be prohibited by law.

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Original Communications.

A STUDY OF LESIONS OF THE LIVER IN YOUNG CHILDREN.*

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(FROM THE DEPARTMENT OF PATHOLOGY OF THE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, NEW YORK.)

I have brought together in this paper certain observations on various lesions of the liver in infants and young children. This has seemed desirable, since the conclusions arrived at are somewhat at variance with the ordinarily accepted ideas. These observations were for the most part made at the New York Foundling Hospital, and on children usually under three years of age. A few on older children were made at St. Mary's Free Hospital for Children.

These observations embraced the following lesions: Descended liver, congested liver, fatty liver, waxy liver, cirrhotic liver, focal necrosis of liver, syphilitic disease of liver, tuberculosis of liver, and suppurative hepatitis. Of these lesions only those presenting interesting features are discussed.

DESCENDED LIVER.

Four cases have recently been examined at autopsy. Three were cases of tuberculosis and one a lobar pneumonia. In three of the cases the liver was enlarged. Two of these enlarged livers and the liver of the fourth case were fatty. In all these cases the liver had slipped down the right side of the abdomen,

* Read before the American Pediatric Society, Deer Park, June 27, 1899.

from a stretching of the ligament supporting the right lobe, so that what should be the right side of the liver was really in the pelvis, the upper surface proper being directed to the right side and the left lobe being the only part of the liver just beneath the diaphragm. These cases are important only for purposes of differential diagnosis.

FATTY LIVER.

My attention was first called to the practical importance of a recognition of the frequency of the occurrence of fatty liver by a report of a case of persistent large liver in an infant with chronic intestinal disorder in which an exploratory incision was seriously considered, but in which the enlargement gradually subsided with the amelioration of the gastro-intestinal condition.

Infiltration of the liver cells with fat is very common in infants and young children, occurring very much more frequently than in adults. I find that in about 41 per cent. of the autopsies at the Foundling Hospital, the liver is so fatty that its condition is evident on gross examination. Some of these fatty livers are enlarged and some very considerably enlarged, so that the lower border is below the umbilicus. I have never seen an excessively enlarged liver in a child under five years of age that was not due to fatty infiltration.

My own observations are quite at variance with the current views of fatty liver which have found expression in the textbooks on diseases of children. They hold that it is found most commonly in certain wasting diseases.

C. Oddo, in *Grancher's Maladie de l'Enfance*, classifies the causes of fatty liver as follows:

1. Intoxications: Phosphorus, alcohol.
2. (a) Infections, acute: Typhoid fever, measles, scarlet fever, small-pox and diphtheria, bronchopneumonia, acute general tuberculosis and diarrhea.
- (b) Infections, chronic: Chronic tuberculosis, hereditary syphilis.
3. Maladies of nutrition: Chronic gastro-enteritis, rachitis.
4. Fatty liver associated with the hepatic lesions.

This classification more nearly indicates the conditions

with which fatty liver is associated than that of any other work.

ANALYSIS OF 496 SUCCESSIVE AUTOPSIES USED TO DETERMINE
FREQUENCY OF FATTY LIVER.

In order to obtain a definite knowledge of the frequency of occurrence of fatty livers as found in the autopsies at the New York Foundling Hospital the proportion of cases in which these livers were enlarged and the conditions with which they are usually associated, I have tabulated, with the assistance of Dr. Eli Long, 496 successive autopsies at the Foundling Hospital, omitting only those cases, the records of which were so imperfect as to make them useless for tabulation. The diagnosis of fatty liver was based on the gross examination at the autopsy table.

AGE.—The age was given in 391 of the 496 cases. The average age was about fifteen months. The ages varying from new-born to seven years.

NUTRITION.—1. OF ALL CASES.—Of 455 cases in which the condition of nutrition is stated: 19 were very well nourished; 209, fairly well nourished; 66, poorly nourished; 73, emaciated; 88, markedly emaciated. Thus, 228, or about 50 per cent., were in a satisfactory condition of nutrition; 139, or about 30 per cent., were poorly nourished; 88, or about 20 per cent., were markedly emaciated.

2. OF CASES OF FATTY LIVER.—The nutrition in the cases of fatty liver does not differ materially from the above figures, for in 180 cases where the livers were fatty and the condition of nutrition stated there were 7 very well nourished; 89, fairly well nourished; 27, poorly nourished; 39, emaciated; 18, markedly emaciated. Thus giving 96, or 53 per cent. of cases in a fair condition of nutrition; 65, or 37 per cent. of cases in a poor condition of nutrition; 18, or 10 per cent. of cases in a condition of marked emaciation.

ENLARGEMENT OF THE LIVER.—In these 496 cases, 30 livers were noted as markedly enlarged; 48 as moderately enlarged, and 5 as slightly enlarged, making a total of 83 enlarged, or nearly 17 per cent.

Of these 83 enlarged livers, 64 are noted as fatty, or about 13 per cent. of the 496 cases, or about 77 per cent. of the en-

larged livers were fatty. Of the remaining 19 enlarged livers, 2 are noted as pale; 7, congested; 2, focal necrosis; 2, waxy; 6, negative.

FATTY LIVERS.—Of these 496 cases, in 202, or about 41 per cent., the livers were fatty, that is, showed evidence of fatty infiltration on gross examination; of these, 59, or 12 per cent., were very fatty; 105, or 21 per cent., noted simply as fatty; 38, or 8 per cent., noted as slightly fatty.

With reference to the frequency of fatty livers with different diseases, we find them very commonly in acute infections but rarely in chronic wasting diseases. In marasmus they very rarely occur. In the small number of cases of simple marasmus, six of which I have records, not one shows fatty liver. In simple uncomplicated rachitis again (6 cases) there are no fatty livers; also, 5 cases of syphilis show one moderately fatty liver; also, 2 noted as malnutrition show no fatty livers.

Sixty cases of bronchopneumonia gave 4 very fatty livers; 13, fatty; 4, slightly fatty; total, 21 fatty ones, or 35 per cent., being less than the proportion of fatty livers in all cases. This is perhaps misleading as these are not all cases of acute bronchopneumonia. That is to say, many cases come to autopsy after a short acute illness without definite diagnosis, and the only lesion found is a bronchopneumonia. Such cases would be included in this classification as bronchopneumonias, although death might be due to some other disease without evident lesions.

Six cases of chronic bronchopneumonia showed 3 fatty livers, or 50 per cent.

Thirty cases of bronchopneumonia with colitis gave 4, very fatty; 9, fatty; 1, slightly fatty; total, 14, or about 47 per cent. Eleven cases of bronchopneumonia with rachitis gave 5 fatty livers, or 45 per cent.

In 37 cases of tuberculosis there were 15 fatty livers, or 41 per cent.; just the proportion of fatty livers in the total number of cases.

In the following table these diseases are placed in the order of the frequency with which they are accompanied by fatty livers:

TABLE SHOWING THE RELATIVE OCCURRENCE OF FATTY LIVER
WITH DIFFERENT DISEASES.

	NO. OF CASES.	NO. OF FATTY LIVERS.	PER CENT. OF FATTY LIVERS.
Acute Meningitis (non tuberculous)....	13	9	69
Gastro enteritis.....	56	30	54
Measles.....	51	27	53
Diphtheria.....	44	22	50
Bronchopneumonia, Chronic.....	6	3	50
Bronchopneumonia, with Colitis.....	30	14	47
Bronchopneumonia, with Rachitis.....	11	5	45
Whooping-cough.....	18	8	44
Tuberculosis.....	37	15	41
Empyema.....	27	10	37
Bronchopneumonia.....	60	21	35
Syphilis.....	5	1	20
Rachitis (uncomplicated).....	6	0	0
Marasmus.....	6	0	0

WAXY LIVER.

Waxy liver is rare in young children, and is, therefore, very infrequently seen at the Foundling Hospital. The two cases in which the writer has found this condition were reported more fully elsewhere.*

One case was in a boy six years old with tuberculous disease of the vertebræ and psoas abscess. Both liver and spleen were enlarged. The urine contained 25 per cent. albumin. Ten days before death ascites and swollen extremities were noticed and the liver extended to the umbilicus.

At the autopsy the liver was found to extend from the fourth rib to the umbilicus and to be hard and waxy. The spleen was also enlarged and waxy. The kidneys were pale and waxy.

* *New York Medical Record.* Vol. 52. 1897. P. 319.

The adrenals were apparently tuberculous. There was a bone abscess involving the vertebræ.

The second case occurred in a girl ten years old, who had suffered from progressive anemia for nearly a year, the hemoglobin having been reduced to 27 per cent. Both liver and spleen were markedly enlarged.

At the autopsy the liver extended from the fourth space

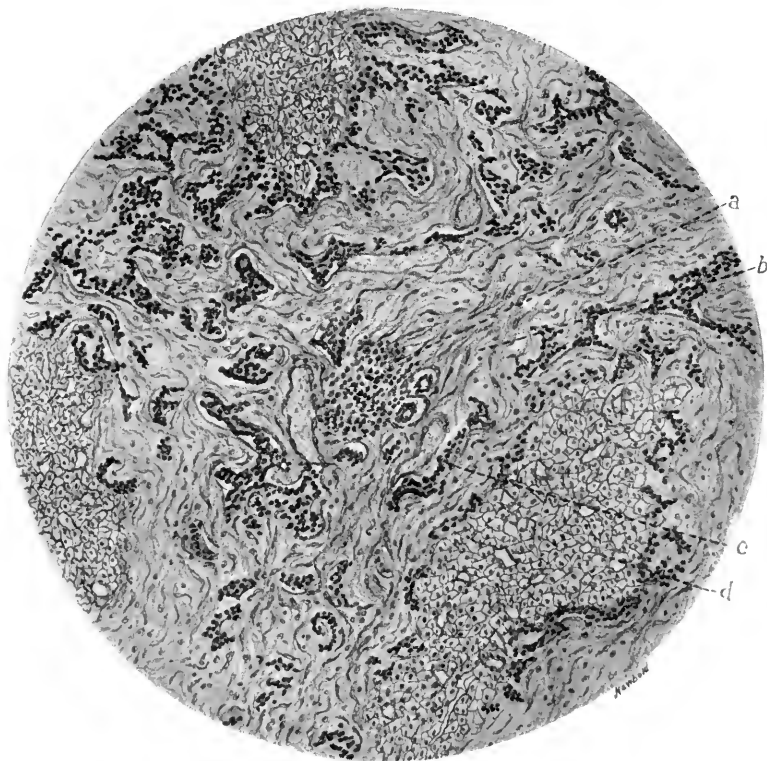


Fig. 1. A SECTION OF CIRRHOTIC LIVER IN A CHILD SHOWING: *a*, Cellular Connective Tissue. *b*, Dense Connective Tissue. *c*, New-formed Bile-ducts. *d*, Liver Parenchyma.

to the level of the umbilicus and was hard and waxy. The spleen reached to a line drawn from the umbilicus to the left anterior superior spine of the ilium. The left kidney was the seat of a very large abscess and the capsule was hard and thick. The right kidney was pale and waxy. The right adrenal was tuberculous as were also two mesenteric lymph nodes.

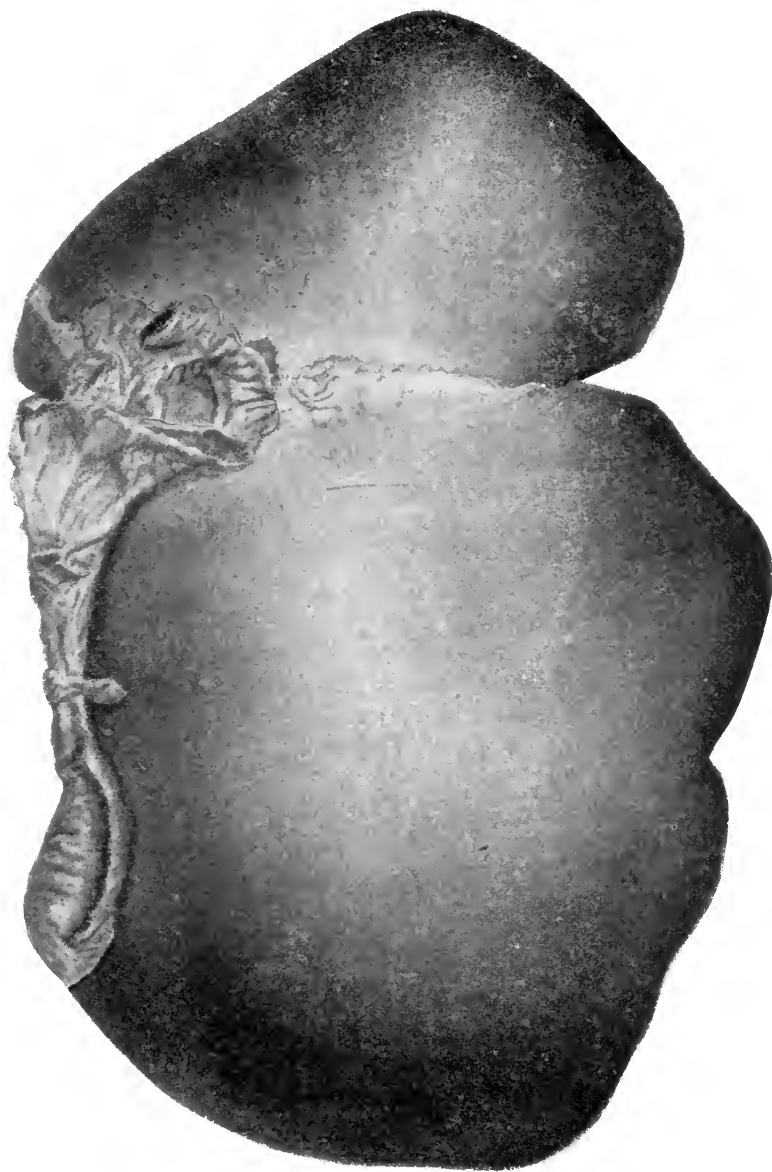


Fig. 2. LIVER OF CHILD SHOWING FOCAL NECROSIS FOLLOWING MEASLES.

Both cases were associated with suppuration. In one of the cases the abscess was tuberculous. In both cases the liver and spleen were very markedly enlarged, while the liver, spleen and kidneys of both cases showed waxy degeneration.

CIRRHOTIC LIVER.

Cirrhosis of the liver occurs occasionally, although rarely, in children. Two marked cases have been examined by the writer, both at St. Mary's Free Hospital for Children, and in successive years. The first has been already reported.* It occurred in a Syrian boy ten years old, who had had measles and whooping-cough some time before. Ten months before admission he had an illness with fever and pain. There was no history of alcoholism. His present illness dated from one month before, edema of the feet, dyspnea and scanty urine having been the first symptoms. On admission there were jaundice, ascites and enlargement of the liver and spleen. Albuminuria occurred a month before death. The blood showed a diminution in hemoglobin and a slight leucocytosis.

The second case was a girl, nine years old, who was said to be in good health until twenty-five days before her death. She gave no alcoholic history, but had had measles and chicken-pox some time before. Nine days after her illness began she was admitted to the hospital suffering from pain in the abdomen and ascites, having been already twice tapped. There was no jaundice.

The liver was not thought to be enlarged. The temperature ranged from 98° to 101° -F. On account of doubt as to the cause of the ascites an exploratory laparotomy was done. The liver was felt and seemed rather rough. The child continued to fail and died sixteen days after admission.

Both of these cases thus had a moderately short history, one of three and a half months, the other of not more than a month. Both had marked ascites and emaciation; and one had jaundice, while in neither was there any history of alcoholism or immediately preceding acute disease or of any of the conditions known as frequently associated with cirrhosis.

In both cases the livers showed very similar conditions. They were hob-nailed and very hard on section. The microscopical section in both cases showed an apparently very active

* *New York Medical Record*, Vol. 53, 1898, P. 280.



Fig. 3. SECTION THROUGH LIVER OF CHILD SHOWING FOCAL NECROSIS FOLLOWING MEASLES.

interstitial change going on. There was a very extensive hyperplasia of the interlobular connective tissue, and in this new connective tissue a very marked hyperplasia of the so-called new-formed bile-ducts. This is well shown in the illustration (Fig. 1).

FOCAL NECROSIS.

This condition is due to the local action of bacterial toxins usually at a distance from the seat of the bacterial growth.

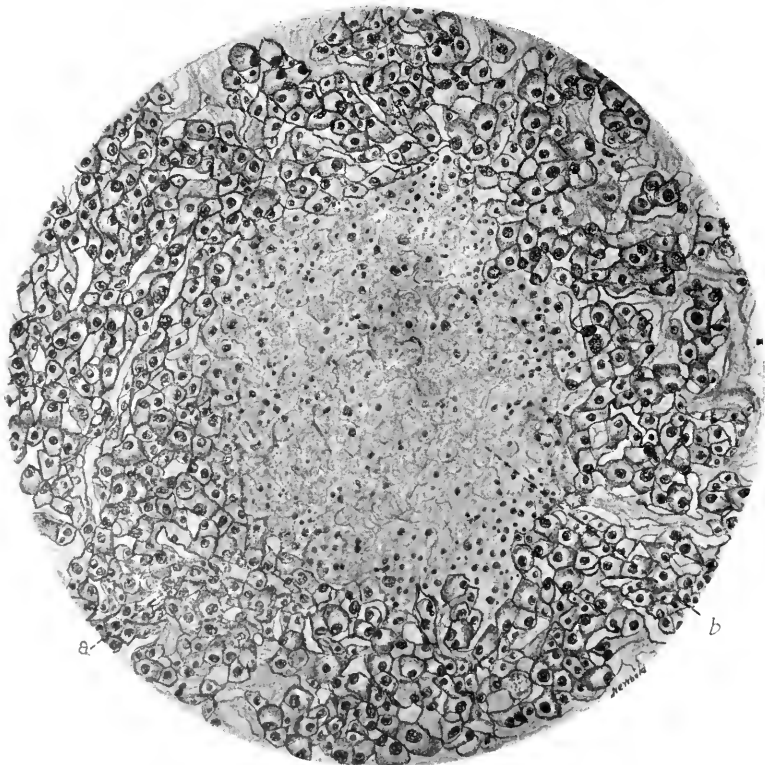


Fig. 4. AN AREA OF FOCAL NECROSIS IN LIVER OF CHILD FOLLOWING MEASLES.
a. Liver Parenchyma. b. Area of Focal Necrosis.

It has been observed resulting from the toxins of diphtheria, acute lobar pneumonia, malaria, streptococcus infection, and Asiatic cholera. Two toxalbumins of vegetable origin have been found to produce similar lesions. The lesion is not confined to the liver, but involves other organs.

In the liver only the larger areas of focal necrosis are visible

to the naked eye. The appearance of these larger areas is fairly characteristic (Figs. 2 and 3) although they may be mistaken for tubercle. The microscopic lesion, when well marked, consists of a sharply circumscribed, roundish area of necrosis, in which the cytoplasm fails to stain, and there is fragmentation of the nuclei (Fig. 4).

The writer found this lesion of focal necrosis following measles in four cases out of fourteen consecutive autopsies on measles cases. All of these were very carefully examined. In two of the four cases the lesion was evident on gross examination, while in one case only one microscopic area of marked necrosis was found. So far as the author knows this lesion has not previously been described as a lesion of measles. A more complete report of this work has already been made.*

SUMMARY.

1. Descent of the liver down the right side of the abdomen, so that the right lobe reaches below the crest of the ilium, occurs not very rarely in infants, and particularly in those in whom the liver is enlarged.

2. Fatty livers occur very frequently in the infants and children which die at the Foundling Hospital, or in about 41 per cent. of all cases.

3. The condition of nutrition of the child, as expressed by the absence of fat in general and wasting of tissue, apparently has no connection with the fatty condition of the liver, the condition of nutrition in the cases having fatty livers averaging about the same as in the whole number of cases.

4. Fatty livers occur rarely in the following chronic wasting diseases: Marasmus, malnutrition, rachitis and syphilis, unless such condition be complicated by an acute disease.

5. With tuberculosis fatty livers occur not more often than with other conditions.

6. Fatty livers occur most often with the acute infectious diseases and gastro-intestinal disorders.

7. The two cases of cirrhosis of the liver examined by the writer ran a comparatively acute course. The livers on section showed a marked hyperplasia of the so-called new-formed bile-ducts.

8. Focal necrosis of the liver may be a lesion of measles.

* *New York Medical Record.* Vol. 54. 1898. P. 135.

DISCUSSION.

DR. WENTWORTH.—I should like to say a few words about focal necrosis. I believe the work of Flexner on that subject has been proven by Mallory to be incorrect. Mallory demonstrated fully, I think, that the necrosis is produced by proliferation of the endothelial cells lining the lymph spaces. Necrosis results from the mechanical hindrance to the circulation produced by these cells. If I remember rightly, Flexner believed the necrosis was due to the action of toxins on the cells.

DR. KOPLIK.—I think this contribution to necrosis is an important one and a step in advance. In a paper read recently at the New York Academy of Medicine, with accompanying specimens, I believe I said that these areas of focal necrosis were easily mistaken for cirrhosis of the liver. The areas described are not necessarily the beginning of any syphilitic process and we must be careful in making the diagnosis, especially as enlargement of the liver is so very common, as shown in this paper. Very good clinicians are always on the lookout for enlargements due to syphilis and in that respect the paper throws light upon a great many cases that have been considered as beginning cirrhosis.

DR. BLACKADER.—I have listened to this paper with much interest. During the past few years I have met several cases of temporary enlargement of the liver in children. One case I reported three years ago before the Society. Last year I met with another case, in a young girl between nine and ten years of age, suffering from symptoms of general malnutrition, with some gastro-intestinal disturbance. On the fifth or sixth day after I was called in, the liver showed signs of enlargement, and the spleen was palpable. The enlargement increased, until its lower edge was felt below the line of the umbilicus; the blood was carefully examined, with negative results. This enlargement slowly passed away, and at present there is no indication of the trouble. Such enlargement must be somewhat rare, for I have found only indefinite reference to it in the text-books. Probably this fatty condition which Dr. Freeman has spoken of may explain it.

DR. FREEMAN.—The fatty condition of the liver may be due to toxic absorption and in that case one would suppose it would pass away when such absorption should cease.

THE MORTALITY AND TREATMENT OF ACUTE INTUSSUSCEPTION.*

BY FRED. KAMMERER, M.D.,

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The subject of intussusception, especially in the very young, is a fascinating one to the surgeon, and, presenting as it does, so many points of interest from a pathological, as well as a therapeutical point of view, it has been well worked out during the past ten or fifteen years. The clinical contributions to the subject are innumerable. But, unfortunately, with a few exceptions, they are limited to a personal experience of only a few cases. This has made the collection of statistics of non-operative, and especially of operative treatment of intussusception, a very arduous labor. But the work has brought fruit, and much light has been thrown on the question under discussion.

The pathology of intussusception, barring, perhaps, its etiology, is well understood. The diagnosis is generally easy, and the condition unmistakable. The measures for its relief are purely mechanical, and have been clearly defined. The surgeon knows what he has to expect when opening the abdominal cavity for intussusception, and the numerous complications of other abdominal diseases are not present here, to tax his ingenuity, provided he has a fair amount of experience in intestinal work. Thus, every case has a value in the consideration of the subject, and large individual experience, while desirable, is not really essential.

Taking a broad survey of the recent literature of the subject, one conclusion can be readily reached. Non-operative treatment of intussusception is less in favor than formerly, and early operative interference has become more popular with the profession. This change is not due to great improvements in surgical technique during the past years, for such have not been made, but rather, to a careful consideration of the literary material at our disposal.

Of the bloodless methods, there is, I think, only one which deserves any serious consideration in the treatment of intussus-

* Read before the Section on Pediatrics, the New York Academy of Medicine, December 14, 1899, as an introduction to the discussion of the subject.

ception, the injection of fluids into the rectum. Manipulations of the tumor, the use of electricity, abdominal taxis, are means which may have been occasionally employed with, perhaps, some semblance of success. They are mentioned in text-books, I imagine more for completeness sake than because they ever have been methodically employed. Inflation of the rectum with air, carbonic acid or hydrogen gas, is still perhaps more in use than are the methods just mentioned. I know of one case, by Williams, in which inflation by carbonic acid was successful in reducing the intussusception and curing the patient. I, personally, have no experience with it, nor do I know of anyone else who has.

The case is different, however, when we come to consider the injection of water into the rectum. This method still has many advocates, and a number of successes are occasionally reported. We may state at the outset, that the method is applicable only to cases of intussusception in the large intestine (the colic and ileo-cecal varieties), according to Leichtenstein, in about 68 per cent. Intussusception of the small gut cannot and should not be treated by water enemata. It is true, some experiments have shown that water may be forced through the cecal valve into the small intestine on the cadaver, but I do not believe, from some personal experiments made years ago, that a fair amount of pressure can be attained in the small intestine without great danger of rupturing the colon. The success of the experiment is dependent, in the healthy gut, upon so many undefinable factors, that I do not think accurate figures can be quoted. Mortimer found cracking of the serous coat of the colon when he allowed water to flow from an elevation of only five feet into the bodies of young children. These are experiments on the healthy, although not living intestine. But, if the pressure which the intestine can successfully resist, without rupturing, has been shown to be an uncertain quantity in these experiments, how difficult, nay, how utterly impossible would it be to estimate the pressure which we can safely apply to a perhaps already injured intestinal wall, in cases of acute intussusception. Medical literature contains quite a number of records of rupture through an attempt at reduction by enemata, and many others have very likely never been published. Is it astonishing, then, that the tendency in all recent publications on acute intussusception has been in the direction

of discouraging forcible enemata after the first twenty-four hours? Even this time limit is arbitrary. We know that in very acute attacks, changes may have already taken place at the neck of the intussusceptum after the first day, that will make the use of enemata a very hazardous proceeding. In chronic cases, on the other hand, enemata may be employed with impunity, many weeks after the onset of symptoms. It is somewhat surprising, in this connection, to note that reference is so frequently made to the quantity of water injected. This would seem to me to be a point of minor importance, as the capacity of the large bowel varies so much in different persons. It does not matter how much water is injected, but we should never allow a hydrostatic pressure of more than three or four feet in children.

The most serious objection to the use of distention, however, is our inability to recognize that reduction has really been accomplished. Barker, in his large personal experience of fifteen operative cases, reports eight in which enemata were tried unsuccessfully. Of these eight failures, two were recognized as such, but in six others, reduction had been apparently accomplished. It was only when abdominal section was done later on, that this was found not to have been the case.

It has often been said that recurrences after reduction by distention are more frequent than when reduction has been effected by manipulations after laparotomy, but I do not think that we will go wrong in attributing many of these recurrences, in the face of such testimony as Barker's, to incomplete reduction at the time. It should be said, on the other hand, that trustworthy observers have reported cases of genuine recurrence after distention. For the application of forcible enemata, I think, the following rules can be laid down:

In acute cases, an attempt at reduction should only be made very early in the case, and once only.

This attempt should always be made under complete anesthesia, with relaxed abdominal walls.

Hot water should be employed in preference to iced water, although the latter is said to have effected reduction when the former failed.

In very acute cases, the method should not be employed.

After one failure, laparotomy is indicated.

When laparotomy has been determined upon in the treatment of intussusception, the question of paramount interest to

the surgeon, is that which relates to the reducibility of the tumor.

When the latter has become irreducible, important changes in the intestinal wall will have generally occurred.

The mortality in reducible cases has been shown to be less than half that in irreducible cases.

The causes of the high rate of mortality in the last instance are generally the septic condition of the intussusceptum, and the necessity of extended surgical interference.

The mechanical conditions in intussusception have often, and very aptly, I think, been compared with those existing in strangulated hernia. They are more urgent, indeed, than in some cases of intestinal obstruction by bands and kinks, where the vitality of the intestinal wall is often not impaired. Who would think of opposing abdominal section in the latter cases? But, in the former, we hesitate because an uncertain and occasionally very dangerous proceeding now and then brings relief. Although statistics will never be at our disposal, I, personally, have the feeling that the mortality from intussusception could be vastly reduced if all cases were operated on immediately after the diagnosis has been made.

I should like to refer to a few points in the technique of laparotomy in small children. My own personal experience is limited to two cases—children of six and three months of age. In both of these, reduction was possible; in one, at the end of the third day, and in the other, during the second day. In the second case, although of shorter duration, there were found distinct signs of beginning general peritonitis at the time of operation, although the disinvaginated bowel did not show any marked lesions. The little patient died a day and a half later, after rallying well from the operation itself. In this case, I refrained from making any traction on the entering layer, as I did in my first case, and succeeded equally well by compressing the sheath a little below the point at which the apex of the intussusceptum could be felt. This seems, certainly, a safer method, for it combines pressure upon the apex with traction on the sheath, thereby lessening the force of traction.

In both of my cases I had not the slightest difficulty in exposing the intussusception through a median incision. The latter was employed, reaching from the symphysis beyond the umbilicus. If the tumor lies to one side in the abdominal cavity,

some surgeons¹ prefer a lateral incision at the external border of either rectus muscle. Treves condemns it, especially in children, but I really do not see on what grounds. If an intestine, strangulated within the abdominal cavity, is for some reason fixed, it is better, I think, to go as near as possible to the seat of trouble, by making a lateral incision. I have had some experience in adults, that strengthens me in this view. I think the same arguments will hold in intussusception in children.

Shall we do anything to prevent reinvasion? I should hardly think so, as this is a rare occurrence after laparotomy. But if, for any reason, the surgeon fears recurrence, and is anxious to guard against it, I should prefer to shorten the mesentery by folding it in the direction of the long axis of the intestine and retaining the folds by several sutures. Fixation of the bowel itself to any part of the abdominal cavity I do not consider advisable.

The mortality of laparotomy, when reduction is impossible, is frightful. Still we cannot trust to spontaneous elimination of the intussusceptum as a means of cure, although a number of cases have ended favorably in this manner. When the abdomen has been opened, we must relieve the intussusception in one way or another. A number of operative procedures are available for this purpose:

- I. Resection of the entire intussusception, with end-to-end suture or the establishment of an artificial anus.

- II. Resection of the intussusceptum after longitudinal incision of the sheath.

- III. The establishment of an artificial anus or of a lateral anastomosis, leaving the intussusception untouched.

The results from these procedures do not seem encouraging, and are, in part, conflicting. The establishment of an artificial anus alone, unless we are driven to it by the very desperate condition of the patient does not commend itself. Intestinal anastomosis, in other words, side-tracking of the fecal current, is not viewed with more favor by most surgeons, as it also leaves the intussusception within the abdomen, and exposes the patient to the risk of septic infection. A curious accident has lately been reported by Ludloff, as the result of this procedure. Some weeks after a communication had been successfully established, the intussusceptum moved down further and closed the anastomosis, caus-

ing acute obstruction and necessitating another laparotomy, which finally led to the patient's death.

Resection, either of the entire intussusception or of the intussusceptum alone, are the methods which should be employed in irreducible cases. To which of the two preference should be given, is still an open question. Total resection was first tried, with uniformly fatal results, and was abandoned for partial resection of the intussusceptum, according to the Barker-Rydygier method. Of nineteen patients so operated on, eleven recovered. But only lately Kocher has published five cases of total resection and v. Eiselsberg four, all of which were successful.

Before concluding these introductory remarks, I would like to return once more to early operative interference in acute cases in children. We so often read and hear that children do not bear major operations well, and rapidly succumb to shock. This is, certainly, not my experience with laparotomies. On the contrary, I find that children bear these operations exceptionally well, fully as well as adults, provided there be no great loss of blood. In my two cases of intussusception in children, the age of the patients was three and six months respectively. Both operations lasted over half an hour. In one evisceration was practised; in the other, most of the intestines were removed from the abdomen; they were, therefore handled considerably. I could instance another laparotomy in a child with atresia of the rectum, upon which I did an abdominal section two days after birth, and which I kept under chloroform for one hour and a quarter, finally establishing an artificial anus, and still this infant recovered and lived for several weeks. I could further instance, in older children, the successful removal of large renal tumors, more especially at the hands of Dr. Abbe. Barker, who has, perhaps, the largest personal experience in the operative treatment of intussusception in children, does speak of the fact that they bear the operation as well, or even better than adults. We can avoid hemorrhage with almost absolute certainty, during these operations and shock, as the result of manipulations of the intestines ought to be much less severe in children than in adults with a well-developed nervous system.

THE NECESSARY FACTORS IN THE SUCCESSFUL TREATMENT OF INTUSSUSCEPTION.*

C. L. GIBSON, M.D.,

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I propose to limit my remarks on intussusception to the influence of the duration of obstruction on the prognosis and results of operation.

My observations are based on a study of the literature, published in part, two years ago. Since then I have added to these observations in the preparation of a study on the results of operations for intestinal obstruction. The cases, now 187 in number, forming the basis of these remarks as to results, date back only to 1888, as it has seemed wisest not to compare results dependent on less perfect technical work than generally exists to-day.

I would lay particular emphasis on the fact that these cases are all acute, because the conditions of a chronic intussusception differ greatly from the acute, as regards indications for treatment and the results of such treatment. These acute cases are of three grades; that is in addition to the ordinary term of acute, the condition may also be expressed as hyper-acute or sub-acute, according to the intensity of the symptoms.

In operating for intussusception, we find three degrees of change in the intussusceptum, each one varying very distinctly, in symptoms, in morbid anatomy, in the indications for treatment and the results from the condition *per se*, and from the operative procedures in order. That is, we find on operating, that the intussusception is either reducible, irreducible, or gangrenous. And whether we find one or the other of these conditions *depends almost entirely on the duration of obstruction*. This fact I must emphasize, that in early interventions we get a reducible intussusception with a good prognosis, in *delayed* intervention, a more serious state of affairs, with bad prognosis *per se*, and requiring operations attended with greater shock and risk to life. Combined forms may exist, that is, an intussusception may be reducible, and yet be in a condition of gangrene, or on the verge of becoming so. The irreducible intussusception may be en-

* Read before the Section on Pediatrics, the New York Academy of Medicine, December 24, 1899.

tirely innocuous, except with regard to its mechanical impediment, or it may also be plainly gangrenous, or it may present doubtful elements in regard to existing or threatened gangrene. It is, of course, obvious that the distinction between the several varieties must be clearly appreciated.

My purpose is to demonstrate, if possible, that the main feature of expected success in relieving intussusception depends: First, on the intussusceptum being found in a reducible condition and free from septic changes, and second, that such a favorable condition can ordinarily only be met by a very early interference. That is, the prognosis depends absolutely on the promptness of relief. Under such circumstances, other things being equal, in competent hands, a comparatively good result is to be expected. But so soon as we encounter the second degree of severity, the irreducible intussusception, speaking in the strictest sense as of a purely mechanical phenomenon entirely free from septic conditions, the mortality is at once more than doubled. And when we encounter the third variety, gangrene of the intussusceptum, we are confronted with a state so severe as to be almost beyond the hope of relief by human methods. For we are dealing with a profound toxemia which if not checked, is necessarily fatal and so affects the resisting power of the patient, that even a trivial interference cannot be borne. And yet, in order to entertain the slightest hope of saving the patient, the operative measures undertaken must be drastic. A double indication exists, the relief of the obstruction, and the relief or elimination of the gangrenous element. To accomplish the one, without as thoroughly handling the other is futile and absolutely bad judgment. To make an artificial anus in gangrene of the gut may relieve the obstruction, but brings no betterment of the prognosis which still remains absolutely hopeless. Free extirpation of the intestine is called for, an operation which, in these desperate cases, is practically always fatal.

The mortality of the 187 laparotomies mentioned above was 51 per cent.

That the condition of the intussusceptum has the greatest influence in determining success or failure is evident by the following contrasts:

Reducible,	126 cases.	Mortality,	36 per cent.
Irreducible,	14 "	"	64 per cent.
Gangrenous,	23 "	"	95 per cent.
Irreducible, or	} 24 "	"	75 per cent.
Gangrenous,			

The results of operations for these various degrees of intussusception bear out the above statements with remarkable accuracy. The mortality of reduction alone is only 36 per cent. In 34 cases in which an artificial anus was established the mortality was 83 per cent., and of 32 resections the mortality was 81 per cent. Only 1 case of resection of gangrenous intestine was saved. These results are perhaps most clearly defined when we study the conditions attending operations on any given day. For instance, on the first day there were 35 operations and 13 deaths, a mortality of 37 per cent. Even on the first day the bowel may be found so damaged that reduction alone is insufficient, as there were two resections performed, and a study in detail of the histories gives the impression that more such operations should have been performed. The percentage of reducible cases was 94 per cent.

On the second day there were 36 operations with 14 deaths, a mortality of 39 per cent. On this day 6 operations other than reduction were found necessary, namely: artificial anus, 3; resection, 3, bringing down the percentage of reduction to 83 per cent., while the mortality rate is on the increase. On the third day, of 33 cases, 20 died, a mortality of 61 per cent.

These tabulations afford most striking proof of the disastrous consequences of delay. For now only 20 cases could be reduced (61 per cent.), and it was necessary to perform an operation for artificial anus four times and to do resection nine times. Here we strike a level between the percentage of reducible cases and the percentage of mortality. On the fourth day, of 15 cases, 10 died, a mortality of 67 per cent. The chief reason for this increased mortality is at once apparent, for on this day only 6 cases (40 per cent.) were reducible, the others requiring an artificial anus or resection. There is no need of any further elaboration to demonstrate the rightfulness of the plea, that in order to obtain success operations must be performed early enough to find the intussusception reducible—that good results depend entirely on reducibility.

The fifth and sixth days show respectively a mortality of 73 per cent. and 75 per cent.

REPORT OF TWO CASES OF SARCOMA OF THE LOWER JAW.

BY W. H. HUDSON, M.D.,
La Fayette, Alabama.

CASE No. I.—Mary, negro, aged seven years, was brought to me, June, 1896, on account of a large tumor which grew from the lower jaw, and prevented the opening of her mouth sufficiently wide to allow her to eat comfortably. This formation had been noticed for the first time about three months previous to her visit to me; but as negroes are not very observant in such matters, it is probable that the growth began a month or two before it was discovered. As far as could be learned, the child's family history was good, and there was no history of traumatism. The girl, when first seen, appeared in fairly good health; she was of the usual size for her age. The tumor was a large one, extending from the neck of the jaw to the mental foramen. It was smooth and solid, and gave no crackling sound under pressure. The teeth were all intact; some teeth deviating a little inward. There were no enlarged lymph nodes in the neck; and although the skin over the tumor was not adherent it was a little mottled in appearance. The upper and lower teeth could be separated only for a short distance, and careful inspection revealed the fact that the tumor grew around the bone, the jaw appearing to go into and come out of the tumor in such way as to show that the tumor was not simply the enlarged bone.

Fig. no. 1 is from a photograph taken the day before the operation.

Diagnosis.—A sarcoma of rapid growth, perhaps of periosteal origin. An immediate operation was advised, but not a very favorable prognosis was given.

Operation.—The hair was cut short and the skin of face and neck carefully prepared. Ether narcosis. The external incision was made from lower lobe of ear to the middle line in front. The lower lip was severed at the median line, the lateral incisor tooth extracted, and the bone sawed through at this point. The facial vessels were tied before being cut, and all bleeding carefully controlled. Muscular attachments to tumor and jaw were severed with scissors and knife, at as great distance from the tumor as was possible. The tumor and jaw were then easily

displaced downward and outward. The remaining muscles, inferior dental nerve, and vessels were easily separated, and the artery was tied high up. The tumor and half the lower jaw were removed. Bleeding was so effectually controlled that no blood got into the throat. It should be borne in mind that it would generally be safest to do such operations with the head lower than the rest of the body. This method very effectually prevents the flow of blood into the trachea.



Fig. 1. CASE I.—PHOTOGRAPH TAKEN THE DAY BEFORE THE OPERATION.

The mucous membrane was tightly closed with fine cat-gut ligatures, the external portion of the wound accurately closed by silk worm ligatures, placed deeply in the wound so as to prevent the formation of any dead spaces. A small gauze drain was left in the middle portion of the incision, and the usual dressing applied. Healing was complete in ten days, and the patient discharged. Fig. no. 2 is from a photograph taken at the time. The patient's people were instructed to bring her to me every two weeks that I might watch for a recurrence of the growth.

Macroscopic examination of tumor.—The tumor is oblong, smooth and of solid consistency. At its upper part the coronoid process, sigmoid notch, condyle and neck of the jaw are to be seen, and are continuous with the bone which runs through the tumor mass. At the portion of tumor corresponding with the front of the lower jaw, the bone is seen coming out of the tumor, and to all appearances it has



Fig. 2. CASE I.—PHOTOGRAPH TAKEN TEN DAYS AFTER THE OPERATION.

not been invaded by the sarcomatous process. The posterior immature teeth have been forced upward so that it was a very easy matter to remove them. The internal surface of the bone also shows the tumor covering it. Where the tumor is split it is shown to be made up of spiculæ of bone radiating from the centre; as the periphery is reached the spiculæ diminish in number, the bone in this region appearing as composed of small granular deposits; in the extreme periphery of the growth the deposits of bone are only very exceptionally found. It appears reasonably certain that the growth, which microscopic exami-



Fig. 3. CASE I.—PHOTOGRAPH OF THE TUMOR REDUCED TO THREE-QUARTERS NATURAL SIZE.

nation shows to be a spindle-cell sarcoma, has had its origin from the periosteum of the inferior maxilla.

Fig. no. 3 is a photograph of the alcoholic specimen about three-quarters the natural size.

Microscopic examination of the tumor.—A typical spindle-cell sarcoma. Here and there in the periphery small deposits of bone tissue are to be found. As the centre of the tumor is approached the bone is very much increased in quantity, radiating spiculæ making up the larger portion of the formation.

In September of the same year, there were signs of recurrence of the tumor. From this time on the growth was

very rapid; it again filled up the side of the face from where the tumor was removed, and extended for some distance into the neck and above the ear.

A second operation was considered and undertaken in October. The common carotid artery was tied with the purpose in view of ligation of the internal carotid high up so as to make a thorough excision of the recurrent growth. After the common carotid was ligated, the little patient exhibited considerable weakness and the operation was abandoned at this point. She suffered in no perceptible way from the effect of the ligation of the artery. The sarcoma appeared after this to cease growing so rapidly. A few weeks later the patient passed from my care and died in a short time.

CASE No. II. — M. C., white, aged eighteen years, consulted me in March, 1899, on account of a smooth, conical-shaped tumor which grew in front of the first molar, canine and lateral incisor teeth on the right side of the lower jaw. The tumor grew out from the alveolar process along the teeth, apparently having had its origin in front of the lateral incisor and canine teeth. The tumor, at the time of my first examination had grown to a height a little above the top of the teeth. The conical point of the tumor was perfectly smooth and of fairly firm consistency. The teeth were not displaced backward nor separated; but the canine, and especially the incisor teeth, were quite loose. The alveolar process was enlarged outwardly, as was also the bone just below it. The lateral incisor tooth was extracted; a piece of sarcomatous looking tissue, about the size of half the first phalanx of the little finger was brought away with it. This tissue was strongly adherent to the tooth and could be cleared from it only by scraping it away with the knife. The conical, projecting point of the tumor was excised, and the tissue which came away on the



Fig. 4. CASE II.—PHOTOGRAPH TAKEN AT THE TIME OF THE FIRST EXAMINATION.

tooth was examined microscopically and found to be sarcomatous. Fig. no. 4 shows this patient at the time of the first examination.

The patient was informed that the growth was malignant and an early operation was advised. She did not, however, consent to an operation until the latter part of April. By this time the growth had considerably increased in size; having displaced the alveolar process outward until it was fully three times its normal thickness. It had apparently extended some distance into the bone.

Operation.—Under cocain anesthesia I attempted to saw out the whole diseased process, including a small portion of alveolar process on each side of the tumor with a wire saw; but at the beginning of the operation the saw broke and the operation was finished with forceps, chisel and mallet. There was a very thin shell of bone in front of the tumor, and a thicker shell of bone behind it. Pressure brought out a perceptible crackling sound which was due to the giving way of the very thin layer of bone which covered the softened mass. The tumor came away easily from its bed, revealing no attachments, leaving the cavity in which it lay perfectly smooth and white. This smooth wall was chiselled away. The operation revealed the fact that it had not infiltrated either the alveolar process or bone, to any extent which could be seen. There was some bleeding from the bone, both in the surface of the cavity and the alveolar process. The bleeding was effectually stopped by pressing aseptic wax into the bone. The operation was quickly finished, and the patient suffered comparatively little pain. When last seen in August she was well, there being no indication of recurrence.

The application of a bridge containing the removed teeth, will do away with the deformity produced by the removal of the tumor.

Macroscopic examination of the tumor.—As the tumor was removed mostly with a curved chisel, it came away in several pieces. Very thin partitions of bone exist in various portions of the tumor. The tumor itself is soft and white; and there could be, from the cavity it occupied, very little or no doubt but that it originated in a tooth follicle.

Microscopic examination of the tumor.—The tumor is composed of cells which under a low power, would be designated

round cells; but under a high power, three varieties of cells are plainly made out. 1, small round cells, of which some, however, are a little oblong. 2, larger round cells, which frequently, have two distinct nuclei. 3, spindle shaped cells, some of them strikingly spindle shaped, while others are shorter, with blunt ends. At many places in the tumor the stroma is well marked, at other places the cells lie very close together, and here very little stroma is seen. There are numerous small embryonic blood vessels to be found in all parts of the tumor.

Diagnosis.—Sarcoma, having its origin in a tooth follicle.

Sutton ("Tumors, Innocent and Malignant," 1893, page 85), says: "Sarcomata arising in the follicles of teeth are composed of small round and spindle cells, with a few multinuclear cells interspersed. In their early stages these tumors are distinctly encapsuled, but as they increase in size and involve the gums, the exposed surfaces ulcerate and give rise to hemorrhage. When ulceration occurs, the neighboring lymph glands are apt to become infected. *Sarcoma of a tooth follicle only occurs in children, and is particularly apt to involve the germ of the first permanent molar.*" (Italics in the original.)

Other writers have expressed opinions which agree with that of Sutton, given above; but one of the cases here reported furnishes proof that a sarcoma may develop from a tooth follicle in a person eighteen years of age. This, it appears, is the most interesting feature in Case no. II.

CASE NO. I is of interest from the successful removal of the tumor and the uneventful recovery of the patient after the first operation, and also, as a lesson pointing to the necessity for the very early and thorough extirpation of sarcomatous growths, if we are to hope for permanent relief from them.

Traumatic Nervous Diseases in Children.—Schuster and Mendel (*Monatschr. für Unfallheilkunde*), find that in Mendel's clinic during the last few years there have been 53 cases of hysteria in children, namely, 35 girls and 18 boys. Amongst this number in only 5 cases could any connection be traced between any bodily injury and the onset of the disease. All the 5 cases occurred in girls between the ages of nine and thirteen, and only in 1 of them could any hereditary predisposition be found. Under treatment 3 recovered, the other 2 remaining unimproved.—*Medical Review.*

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MODIFIED MILK.

The preparation of cow's milk, so that it approximates the composition of human milk, has been for many years a subject for study and investigation. The ingredients of cow's milk vary constantly in their proportions but the average percentages have been determined by a large number of analyses that are now so carefully recorded that any modification of milk has a basis of accuracy.

Milk may be made suitable for each individual infant in its particular requirements of growth. The bacteriological investigations on the keeping quality of milk and the effect that pathogenic bacteria may have when introduced into the system through the medium of the milk have led to its sterilization and pasteurization. We know the degree of heat necessary to destroy the various bacteria in milk to make it a safe food.

Milk laboratories have become important adjuncts in the system of infant feeding, and they represent the best endeavors

of our profession to secure accuracy in the modification of milk. Lately, however, we have come to recognize that some infants fed on accurate percentages of fat and proteids in milk prepared in milk laboratories have failed to gain in strength and vigor. The influence of heat on protoplasm, and the separation of the "vital" constituents of milk may not express definite changes, and what it is that renders a fresh milk diluted and slightly heated more valuable to some babies than a laboratory modification we do not know; but we are sure of the fact that the fresher and cleaner cow's milk is in the preparation of infant food, the more valuable it will be as a substitute for mother's milk.

THE AMERICAN PEDIATRIC SOCIETY.

The next meeting of the American Pediatric Society will be held in Washington, D. C., May 1, 2 and 3, 1900, in connection with the Congress of American Physicians and Surgeons. The members of the Society are urged to make the proceedings as interesting and valuable as in former years. Dr. Koplik, the President, is *ex-officio* Vice-President of the Congress.

Members who wish to read papers will send the titles to the Secretary, Dr. S. S. Adams, 1 Dupont Circle, Washington, as early as possible.

The meeting will be the twelfth annual gathering of the Society and it is to be hoped that the members will arrange to attend the sessions of the Society and the Congress.

Bibliography.

Christian Science.—An Exposition of Mrs. Eddy's Wonderful Discovery, Including its Legal Aspects; A Plea for Children and Other Helpless Sick. By William A. Purring-ton, *Lecturer in the University and Bellevue Hospital Medical College, and in the New York College of Dentistry upon Laws in Relation to Medical Practice. One of the Authors of "A System of Legal Medicine."* New York: E. B. Treat & Co., 1900. Pp. 194. Price, \$1.00.

The author states in his preface that it has seemed worth while to gather together the papers which were published in various magazines and print them in book form to show the dangers of Christian Science and the limitations of medical legislation.

Summed up by the author the methods of Mrs. Eddy consist in reading from her book and arguing that disease does not exist; and negatively in abstaining from everything that experience proves to be of benefit to the sick.

A case of gangrene of the foot of a child twelve years of age is narrated and a photograph gives the appearance of the diseased leg before the mother, who was a Christian Scientist, allowed an operation. A child should be protected from suffering and the privilege of giving relief was granted long before Mrs. Eddy expounded the Scriptures.

The book is one that should be read by all physicians who wish to know of the fallacies of Christian Science and who desire the opinions of a lawyer who is conversant with the medical legislation that allows people, who do not pretend to have a knowledge of anatomy or physiology, to treat disease by denying its existence.

Transactions of the American Orthopedic Association. Thirteenth Session. Held at New York, N. Y., May 31st and June 1st and 2d, 1899. Vol. xii. Philadelphia: Published by the Association. 1899. Pp. 367, xxviii.

This volume contains a number of papers of especial interest to specialists in diseases of children. Some of the papers have been published in the ARCHIVES OF PEDIATRICS; the most important being Taylor and McKim's article on "Rheumatoid Arthritis."

Papers that are valuable to the pediatricist are by Bradford and Chute on "Non-tubercular Infectious Process in Bone"; and Wilson on "Joint Infection in Typhoid Fever." Thorndike on "The Congenital Deformities of the Spine: Rachischisis and Spina Bifida," has a profusely and beautifully illustrated article that deserves careful perusal.

The book is well printed and is a credit to the American Orthopedic Association.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, December 14, 1899.

HENRY KOPLIK, M.D., CHAIRMAN.

A CASE OF ICHTHYOSIS.

DR. ROSA WELT-KAKELS presented a case of congenital ichthyosis occurring in a girl of twelve. The family history was good. The child's skin presented a grayish, parchment-like appearance, which was most marked on the scalp. The skin of the lower extremities was so much altered that it presented an appearance resembling that of the skin of an alligator. As in other cases of this kind the affection was worse in winter than in summer. The treatment which had proved most successful consisted in the use of baths, followed by inunctions of glycerin or lanolin. Jacobson had reported good results from the internal administration of the thyroid extract.

DR. A. JACOBI remarked that the case appeared to be a rather mild one, and the thyroid must be quite small because the rings of the trachea were very perceptible down to and behind the manubrium sterni. He added that he had paid a good deal of attention to the matter of percussion to determine the persistence or enlargement of the thymus gland, and, although it was usually impossible to determine anything when the child was lying down, he had more than once been able to appreciate an enlargement of the thymus by directing the child to lean forward. Following out this method of examination in the case before the section he had determined that there was a persistence of the thymus gland. As for treatment, he thought that the scabs could be easily removed by continuous warm baths, lasting for three or four hours or even days. Lanolin was useful to keep the skin soft. He would also be disposed to put this child on a long course of treatment with arsenic and, in addition, to give internally thyroid extract.

He then detailed an experience that he had had with the use of the *thymus* extract in a case of pseudo-hypertrophy occurring in a boy of five years. He had found the result so negative that he had sent for a fresh preparation directly from the

factory, but this had proved equally unsatisfactory, no physiological effect being observed after giving as much as forty grains three times a day. He knew that the child had actually taken the medicine because the little one had been under his personal observation and control.

DR. KOPLIK said that this tallied exactly with the experience of certain European observers who had used the thymus extract.

DISCUSSION ON INTUSSUSCEPTION.

DR. FREDERICK KAMMERER read a paper on "The Mortality and Treatment of Acute Intussusception." (See page 93.)

DR. CHARLES L. GIBSON read a paper entitled "The Necessary Factors in the Successful Treatment of Intussusception." (See page 99.)

DR. FREDERICK HOLME WIGGINS said that five years ago he had been deeply impressed with the roughness of the manipulation employed in the so-called injection method of treating cases of acute intussusception, and he could not help feeling that laparotomy, done by a competent surgeon, would prove much less severe to the child. Acting upon this thought he had been led to study the literature of the subject, and had succeeded in collecting a number of cases, clearly proving that the injection treatment was not only unsafe but totally unreliable, and that it was followed by a much larger mortality than laparotomy when done by skilful surgeons. At the present day surgeons were fast coming to believe that laparotomy offered the best chances of success; however, many medical men still insisted upon the injection treatment. Laparotomy could be done in favorable cases in fifteen minutes, and there was an abundance of evidence to show that little children stood such operative interference wonderfully well, and exhibited a very slight degree of shock. He thought the position taken by Dr. Kammerer was the only one that was warranted in the present state of our knowledge. Not only that, but he was sure that in the near future the whole profession would come to look upon the enema treatment as just as inappropriate for cases of intussusception as it would be now to resort to such a method for the relief of strangulated hernia.

DR. WILLY MEYER took the same ground as the other surgeons who had spoken regarding the necessity for prompt resort to laparotomy. He said that one argument in favor of such treatment was the fact that a large percentage of cases of acute intus-

susception were of the ileo-cecal variety, and therefore a large proportion of the cases coming under observation could not be, from the very nature of the case, successfully treated by the injection method. Again the amount of traction that was found to be necessary in cases of laparotomy in order to reduce the intussusception would seem to render negative the idea that much could be accomplished by injections of fluid into the bowel. In one case of chronic intussusception upon which he had operated he had found that the specimen removed enclosed a small round cell sarcoma. He would therefore insist on a search for such a tumor in these chronic cases.

DR. A. JACOBI remarked that much contradictory talk had been indulged in in connection with the enema treatment of cases of intussusception. His own conviction was that the injection treatment was useful, but it should be employed according to a certain definite method. His plan was to be sure that the fountain syringe was not raised higher than from twelve to eighteen inches above the anus of the patient. The child should be placed upon a pillow with its head down and the hips up, and, under chloroform anesthesia, warm water should be poured in under the pressure mentioned, and at the same time gentle manipulation should be made over the abdomen while the anus was held tightly closed. If this attempt at reduction proved unsuccessful, it should be repeated at intervals of one or two hours two or three times, and, if still unsuccessful, laparotomy should be at once performed. However, he did not believe that it was justifiable to resort to laparotomy in the first instance in every case of acute intussusception. It was true that in many cases, and particularly those children who had been suffering from diarrhea, localized peritonitis might develop quite early, and that this might seriously interfere with the integrity of the bowel at the point of obstruction; this, however, only emphasized the necessity for great gentleness in manipulation and for the use of the very moderate hydrostatic pressure which he had recommended.

DR. CHARLES G. KERLEY, speaking of the question of diagnosis, said that it was well to bear in mind that whenever a child presented the group of symptoms—bloody stools, slight fever and a prostration entirely out of proportion to the other symptoms—one should strongly suspect the presence of an intussusception. He had successfully treated two cases by the

injection method, using a pressure of four and a half and five feet respectively. He thought this method should always be given a trial in the early stages, but operation should certainly not be postponed more than a few hours.

DR. ARTHUR L. FISK spoke of three cases of intussusception that had come under his care. Two of these had been gangrenous at the time of operation, and both had terminated fatally. The third case had been a child of six months in whom the symptoms had developed, according to the mother, on the night before he had seen the child. He had used the method of injecting fluid spoken of by Dr. Jacobi, with the exception that he had not resorted to general anesthesia. He had felt a reduction take place under the abdominal manipulation and this had been followed by relief to the child. However, about four hours later, he had been hastily called back to the case only to find that the tumor had reappeared. He had repeated the injection with the same result as before, and, in order to prevent recurrence, he had left in a soft rubber tube which had been passed in almost its entire length. The child had done well during the night, but about seventeen hours later, had suddenly gone into collapse and had begun to vomit stercoraceous matter. The abdomen had been at once opened and the intestine resected. The intussusception was of the ileo-cecal variety, and had carried the caput coli up through the colon. It was evident that what he had succeeded in reducing at first had been the portion in the colon, and it was equally obvious that the portion of the ileum could not have been reduced by means of the injection. He was inclined to think that injections could not possibly reduce intussusceptions of the ileo-cecal variety, but rather that the hydrostatic pressure would serve to close the ileo-cecal valve more tightly.

DR. KOPLIK spoke briefly of three cases coming under his observation, two of which had been operated upon by the late Dr. Van Arsdale. Two of the cases were of the ileo-cecal variety. Injections had been tried, but were unsuccessful. The third case had not been relieved by injections, but as an operation was not allowed, the child died.

Stated Meeting January 11th, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

A CONGENITAL SACRO-COCYGEAL TUMOR.

DR. SARA WELT-KAKELS presented a girl, four and a half years old, who had a congenital sacro-coccygeal tumor. The child had been born after a normal labor, and the tumor had been noticed immediately afterward. This tumor was situated just below the end and to the left of the coccyx. It was soft and, in places, fluctuating. It was translucent, not adherent to the skin, and was increased in tension when the child coughed.

THE SKULL OF AN ANENCEPHALOUS MONSTER.

DR. VANDERPOEL ADRIANCE exhibited such a skull. The points of interest were, the entire absence of the vertex of the skull, and the absence of the forehead and of the parietal bones. The cerebellum was fairly developed, but the cerebrum was entirely lacking.

AN ARM BRACE FOR THE PREVENTION OF SCRATCHING,
THUMB-SUCKING, ETC.

DR. CHARLES G. KERLEY exhibited a brace for this purpose, which was made out of a light rod of soft malleable steel having semi-circular bands to enable one to attach it readily to the arm. It was intended that this splint should be applied over the clothing in such a manner as to immobilize the elbow.

DR. HERMAN thought that for use among the poor the same results could be accomplished as well by the use of a common splint made out of pasteboard, and arranged in such a way that the arm would be confined behind the back.

STATISTICS OF AN EPIDEMIC OF MEASLES, INCLUDING THE
OBSERVATION OF KOPLIK'S SPOTS.

DR. VANDERPOEL ADRIANCE presented this report, which was in regard to an epidemic at the Nursery and Child's Hospital, lasting from May to October of the past year. There had been altogether 96 cases, all but one being in children, the greater part of whom were under five years of age. He said that whatever measles might be in private practice it was a most serious malady in a children's hospital. It was simply impossible to check the spread of the contagion of measles when it had once started in such an institution. Second attacks had not been very frequent, but out of the 96 cases, in this period, second attacks had been noted in 16. He had seen two of these

cases himself, and the other 14 cases had been observed by the house staff and some of the other visiting physicians. As the mucous membrane of the throat furnished a favorable soil for the development of the diphtheria bacilli during an attack of measles this disease was not an uncommon complication of measles. In the epidemic under discussion there had been 36 cases in which this complication had been noted, and of these only 4 had proved fatal. The mortality from the entire epidemic had been $15\frac{5}{8}$ per cent. Four of the deaths had been due to diphtheria, 5 to pneumonia, 2 to pneumonia and colitis, and 4 to enterocolitis. Owing to lack of sufficient ward space it had been impossible to isolate the cases of pneumonia, but in lieu of this the children had been moved frequently from one ward to another, the one that had just been occupied being disinfected meanwhile with formaldehyde. With the exception of the first seventeen cases in the epidemic accurate records had been made regarding the presence or absence of Koplik's spots. In 76 per cent. of the cases the spots had been present; in 20 per cent. they had been visible before the rash had developed and in one case four days before the appearance of the rash. In spite of this he did not think that the observation of these spots had enabled them in any way to check the spread of the infection. This was to be explained most probably by the fact that measles was very contagious during the catarrhal stage, and that the spots did not make their appearance before the period of contagion. When examining for these spots it was most important to have good daylight as they were easily overlooked, especially by an unpracticed eye.

DR. JACOB SOBEL expressed most emphatically his personal belief that the presence of these spots was absolutely pathognomonic of measles, just as much so as the presence of malarial plasmodium in the blood was indicative of malaria. He had yet to see a case in which these spots had not been present, and in which the usual eruption of measles had not been observed subsequently. He had seen in some instances the mucous membrane studded with hundreds of these very minute bluish spots. They were usually visible at periods varying from five days to a few hours before the development of the rash. These spots served as an important sign in differentiating between true measles and german measles. German measles was a separate and distinct disease from rubeola, as evidenced not only by the presence of Koplik's spots in measles and their absence

in german measles, but by the fact that in the latter there was a disproportion between the cutaneous manifestations and the constitutional disturbance. Moreover in german measles the onset was sudden and was associated with very little fever, and the eruption was concentric instead of crescentic as in true measles. He had repeatedly seen german measles develop within a few weeks after an attack of ordinary measles.

DR. J. HOWLAND said that during last fall he had observed an epidemic of measles in the New York Foundling Hospital. Out of 61 cases 4 had proved fatal from the development of a bronchopneumonia. Altogether there had been 12 cases of bronchopneumonia. The practice there had been to remove the patients to another ward at the end of each week in order to disinfect the one that had just been occupied. As the weather had been quite mild it had been possible to secure unusually free ventilation, and thus keep down the mortality to some extent. Profiting by former experience every child developing measles in that institution received an immunizing injection of diphtheria antitoxin, the dose varying from 250 to 450 units. Of the 61 cases of measles 84 per cent. had shown characteristic Koplik's spots, in one instance three days before the rash, in 6 two days before, and in 15 cases one day before. In most instances they had been found on the buccal mucous membrane, and apparently had increased with the development of the eruption. In a more recent epidemic of 30 cases of german measles, occurring in the same institution, careful search had been made for Koplik's spots, but none had been found.

DR. LA FETRA spoke of the value of Koplik's spots as a means of differentiating between a true measles rash and the rashes resulting from the injection of diphtheria antitoxin. He, too, had been unable to find Koplik's spots in any case of german measles. He incidentally called attention to the fact that in every case of german measles coming under his observation he had noted a peculiar redness and swelling of the duct of the parotid gland, just at its entrance into the mouth opposite the second bicuspid tooth. He could not say what was the significance of this sign, but mentioned it in order that he might hear if others had noted the same thing.

DR. E. LIBMAN said that he had been interested in the subject of Koplik's spots for the past four years, and had found it important to note the existence of the red areola around these spots. Koplik's spots were useful not only as a means of differentiating

measles from drug eruptions, but in questionable cases occurring in adults, as well as in some cases of syphilitic eruption. In institutions in which it was made a routine practice to examine the children's mouths it was possible, by means of Koplik's spots, to promptly check an epidemic of measles. This sign was also a useful guide to the physician examining children for admission to a children's hospital. While these spots had been described by Flint in 1880, and by others, the credit was certainly due to Dr. Koplik for having first called attention to the practicable bearing and significance of this diagnostic sign.

DR. J. MILTON MABBOTT was sceptical regarding the *invariable* occurrence of Koplik's spots in cases of measles, but thought that they were present sufficiently often to prove a valuable sign to the physician admitting children to hospitals, and also as a means of checking the disease when it occurs among the better classes of people. He commended highly a plan of keeping a carefully indexed record of all the reports in the Health Department regarding contagious diseases, so that a glance over this record enabled the hospital physician to determine whether a visitor, or a child brought for admission into the institution, had come from an infected quarter.

DR. CHARLES G. KERLEY referred to a family in which he had taken two persons through two distinct attacks of measles, and added that the mother had told him that all of her children had had two or more attacks of measles. Those which he saw had been absolutely typical in every respect.

DR. HERMAN said that he had found Koplik's spots a most useful diagnostic sign in connection with his work as a medical inspector in the public schools. He had been able in this way to exclude five cases, occurring in children who had presented at the time only these spots, and who had subsequently developed in each instance a typical measles rash.

DR. ROWLAND G. FREEMAN said that careful search had been made for Koplik's spots in all cases of measles occurring at the Foundling Hospital during the last two or three years, and their presence had been noted in about the percentage of cases that had been already mentioned. In some cases in which the spots had been present, however, no measles rash had developed; hence, he would suggest that it was hardly prudent as yet to make a positive diagnosis, and expose a child to infection with measles, simply on the existence of these spots.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

DR. A. B. JUDSON, CHAIRMAN.

Meeting of November 17, 1899.

FRACTURE ADDING TO THE DEFORMITY OF POTT'S DISEASE.

DR. W. R. TOWNSEND presented a boy fifteen years of age, who developed Pott's disease in the lower dorsal and upper lumbar region six years ago. Two years ago, having recovered with considerable posterior curvature, after treatment by the plaster of Paris jacket, he fell from an ice wagon, striking on his head. Plaster of Paris was re-applied. He presented a projection on each side at about the level of the twelfth dorsal vertebra. The spinous processes could be felt between the elevations, which were very marked and might have been supposed to be calluses following fracture of the ribs near the vertebral column.

DR. R. H. SAYRE said that in addition to the anteroposterior curve there was lateral displacement which might well have been the result of vertebral fracture.

DR. S. KETCH said that the bony projections were secondary formations, the result of traumatism and distinct from the spinal disease.

RICKETS IN A DWARF.

DR. TOWNSEND presented a girl, six years of age, 35 inches in height, the average height at that age being between 40 inches and 42 inches. There was enlargement of the epiphyses of the long bones with an enlarged head, prominent chest and protruding abdomen. She was a mouth-breather and the failure to grow normally might have been due partly to adenoids and insufficient oxygenation. There might have been obstruction in the posterior part of the nose, although the result of inspection anteriorly had been negative. The characteristic skin and facial expression of cretinism were absent.

DR. SAYRE suggested enlargement of the air passage by treating the tonsils and adenoids.

DR. KETCH said it would be of interest to know whether this relief would promote normal growth.

DR. H. S. STOKES said that the patient was probably a constitutionally lymphatic child, one of a class of patients in whom

the administration of anesthetics was attended with danger. Without hastily making a positive diagnosis of this condition, he suggested that the use of anesthetics be preceded by a thorough physical examination.

POTT'S DISEASE OR FRACTURE OF VERTEBRÆ.

DR. TOWNSEND presented a girl, six years of age, with a very obscure history. Two years ago, when living with her grandmother, after an accident in which she fell down a flight of stairs, striking the back of her neck, a bony prominence had been noticed, with difficult respiration and a habit of supporting her head with the hand placed under the chin. Kyphosis was marked, as shown by the accompanying cut, involving the sixth and seventh cervical and the first and second dorsal, with a depression of the upper cervical vertebræ.



POTT'S DISEASE OR VERTEBRAL FRACTURE.

DR. A. B. JUDSON thought that the number of the involved vertebræ pointed away from fracture and towards Pott's disease. The elements of diagnosis in orthopedic cases might be arranged in the following order of relative importance: 1st, signs (objective), 2d, symptoms (subjective), 3d, history as given by the mother and 4th, history as given by the grandmother.

DR. SAYRE said that a forward position of the head in cervical Pott's disease was frequently attended by difficult breathing. He thought, however, that the child had suffered a fracture, and recalled the case of a man who had fallen down stairs, striking the back of his head. Partial paralysis of the arms developed from pressure. A diagnosis of Pott's disease had been made but the signs and history indicated a fracture.

DR. TOWNSEND said that the treatment, at least, was not doubtful. The affected vertebræ should have complete rest, either by a plaster jacket and head-spring, or by a posterior spinal support and chin-piece. The latter would be less conspicuous and give better support, with or without the addition of

supports going up the back of the head, as might be determined by the progress of treatment, which should be prolonged until the disappearance of all signs of an acute condition. Ultimately the patient would carry the head erect without much deformity, as is the rule in cervical disease thus treated.

THE DURABILITY OF THE PLASTER OF PARIS JACKET.

DR. H. S. STOKES related the history of a case of Pott's disease in a girl who was four years of age when first seen in September, 1894. Duration of disease two months. The tenth dorsal vertebra was affected. The plaster of Paris jacket had been applied anew seven times at intervals of from eight to fifteen months, the average being eleven months. No pain or discomfort had been traced to the apparatus. At the last application, on October 13th, 1899, it was found that a small stone had slipped into the jacket and caused an erosion which had healed in a few days.

DR. TOWNSEND had seen plaster jackets that had been worn two years.

DR. L. W. ELY cited a case in which the jacket had been re-applied at intervals of thirteen and eight months without excoriation.

DR. SAYRE referred to the case of a child who had worn a solid jacket for two years.

DR. H. GIBNEY cited three cases: 1st. A boy seen in 1891. Age four years. Location, middle and lower dorsal region. Emaciation. A large psoas abscess. First jacket was worn two months, the second one year, and the third had been applied two months ago. There had been no increase of deformity, the abscess had been to a large extent resolved and the general health had improved. 2d. Boy. 1895. Six years. Tenth dorsal. First jacket worn three months, the second eleven months and the third was applied three months ago. The local condition was favorable and the health had improved. In the third case, that of a woman of twenty-seven years, a firmly fitting jacket had been worn for a year without inspection, with freedom from pain and discomfort, and with good effect.

DR. SAYRE cited two cases in which patients had not done well with jackets that were removable, but which progressed favorably towards recovery when the immovable dressing had been applied. He had seen cases in which efforts to replace

comfortable jackets by new ones had not been brilliantly successful, it having been a long time before the patient was again made comfortable. For obvious reasons a jacket should not remain in place too long on a child who was growing fast.

DR. V. P. GIBNEY said that more important than the question of time was that of applying the jacket so as to give good support and avoid excoriations. A jacket well applied would not disturb the skin and should be durable. In the case reported by Dr. Stokes the trifling excoriation had soon healed and a cure had been effected by the prolonged splinting of the back.

DR. STOKES said that the percentage of excoriations was small and in ten cases the trouble had been due to the jacket; in four cases, to foreign bodies; little things such as pennies and button-hooks, in six cases. Excoriations caused by a jacket were evidences of a want of skill and experience on the part of the surgeon.

DR. SAYRE said that the skin could be kept clean and healthy by passing a whalebone inside of the jacket and so pulling up and down a fine handkerchief dampened with alcohol.

DR. H. GIBNEY said that a solid jacket should be applied over a long strip of six inch wide linen or gauze, which could be daily wet with alcohol and drawn back and forth.

PLASTER OF PARIS COMPARED WITH STEEL APPARATUS.

DR. KETCH said that the condition of the skin should be made the subject of stated investigation, not to prevent excoriations, but to ascertain whether we were giving the diseased vertebral column all the mechanical support which the toleration of the skin warranted. The use of a steel apparatus facilitated an occasional and desirable estimate of possible decrease or increase of deformity, which was impossible with the immovable dressing. Changes in the shape of the patient, from growth or otherwise, should meet with corresponding changes in the pressure made by the apparatus.

DR. TOWNSEND said that the frequent removal of the jacket or brace was one of the worst things that could be done. It was not practised in the treatment of fractures. In Pott's disease we sought proper ankylosis at the seat of disease. We therefore immobilized the vertebral column. So long as the jacket was clean and the skin healthy we could forego the doubtful advantage to be gained by frequent inspection and rely on the effectiveness of the apparatus.

DR. KETCH said that the removal of the brace for alterations, when done with ordinary care, could not delay or interfere with consolidation. The more scientific procedure was to use an apparatus which was under intelligent surgical control.

DR. V. P. GIBNEY had failed to see that important benefits could be gained by taking off the apparatus from time to time. If sure of the diagnosis and of a well fitting plaster jacket he was confident of a good result.

DR. SAYRE said that in the cervical region and anywhere above the tenth dorsal, a jacket should be supplemented by the jury-mast and by a brace to control the shoulders. Traction and control of the movements of the head were very important. He often made use of a metal and leather support to make a base for the jury-mast.

DR. H. GIBNEY commended the method of application in which the patient rested on two untempered steel rods, bent to fit the shape, and elevated from the table, partly lying on them supine, and partly held up by two assistants who made gentle traction, the rods being drawn out while the plaster was setting.

A Milk-cyst of the Left Mamma in a Boy Thirteen Years Old.—Kirmisson, in *Revue de Chirurgie* of August, 1899, relates the case of a well-developed boy, aged thirteen years, who, after a blow on the left breast two months previously, noticed a tumor, the size of a mandarin orange, developing in that region. The growth was round, movable and indolent. A serous or serosanguinolent cyst was suspected. On aspiration a fluid resembling normal milk was found. The histological examination and chemical analysis revealed the presence of real milk. This is a most interesting and rare case.—*New Orleans Medical and Surgical Journal*, Vol. lii., No. 5.

An Early Sign of Hereditary Syphilis in Infancy.—Carralero, of Madrid (*Internat. Centralblatt für Laryngol.*, etc., Vol. xv., No. 8), has written concerning the coryza of infants at the breast as an early symptom of hereditary syphilis, and the differentiation of this from other forms of rhinitis in infancy. The writer regards the coryza as one of the most constant symptoms—in the majority of cases the first to appear, and in some cases the only early manifestation of hereditary syphilis. The diagnosis is difficult if no other symptoms are present, however; with any obstinate purulent rhinitis this cause must be considered and general specific treatment inaugurated.—*The Medical Age*, Vol. xvii., No. 20.

Pathology.

Thomson, H. Campbell : The Pathology of Acute Chorea.
(*British Medical Journal*, No. 2027, 1899.)

Dr. Thomson's report was based on an autopsy performed on a girl of fifteen years, who was ill for two weeks with chorea of such a violent form that she could be relieved only temporarily by inhalations of chloroform. The temperature was 100° F. on admission to the hospital, rose as high as 104° F. and was 103° F. at the time of death.

The *post-mortem* examination disclosed acute endocarditis of the aortic and mitral valves. There were no macroscopic changes in the brain except hyperemia and a few minute hemorrhages into the white matter.

The brain was examined microscopically. In addition, sections of the spinal cord were examined.

The sum total of the changes found consisted of a slight loss of chromatophile substance at the periphery of the cell bodies of the brain, together with some swelling and alteration in the shape of some of the cells. With the nitrate of silver stain some varicosities of the cell processes were seen, but it was considered that they were very likely artificial, and no conclusions were drawn from them. No definite vascular lesions were found. There were no changes found in the motor cells of the spinal cord.

An attempt to obtain a cultivation from the cardiac valves failed, as also did an attempt to obtain micro-organisms from the blood during life. The other tissues examined were the heart muscle and the kidneys, the latter showed no change, but the former showed swelling and indistinctness of the fibres and feeble staining of the nuclei, and had evidently been affected by the same poison which gave rise to the endocarditis.

The author concluded that the most reasonable idea as to the cause of chorea was that it is due to a toxin circulating in the blood, but he considered that at present there was not sufficient evidence to warrant a conclusion that it is of bacterial origin.

He stated the probable significance of the slight chromatolysis and swelling of the cells which he had found, and noted that the latter lesion had also been observed in five cases re-

corded by Dr. Charlewood Turner. (*Trans. Path. Soc.*, 1892.) The changes found in the present case were not considered to account for the symptoms, since similar changes were produced by other diseases, but at the same time the author considered it important that such changes should be recorded so that one day they may possibly obtain their proper significance when more is known concerning the nature of a nervous impulse and its true relation to nerve cells.

Merceilis, Elizabeth: A Case of Hemorrhagic Disease of the New-Born, with a Bacteriological Examination. (Proceedings of the New York Pathological Society, 1897-1898.)

In reporting her case Dr. Merceilis said that in two months 9 cases of hemorrhage had been seen at the New York Infirmary for Women and Children. In 3 cases the hemorrhage had been multiple and severe, and all had been fatal. In 3 others it had been multiple and slight, and of these 1 had been fatal. In 2 of the infants, who were small and frail, there had been hemorrhage from the nose only. One of these children died. Some of these cases were slight and occurring independently, would have been disregarded. Six of the 9 cases were in male children. The mortality in the whole series was 55 per cent.

Two of the more marked cases were made the subject of special study. The first of these cases developed hemorrhagic swellings which ruptured spontaneously. Death occurred on the thirteenth day. Cultures taken from the finger before death remained sterile.

The autopsy showed extensive cutaneous and subcutaneous hemorrhages, extending from ear to ear and from the maxilla to the clavicle. On the left side there was a sloughing area which exposed the external jugular vein. No point of rupture of the vessel could be detected. The skin of the hands and feet was tough, leathery and almost black. The umbilicus was normal. The thoracic and abdominal organs were congested but there were no hemorrhages. The heart showed slight vegetations. Cultures from the liver and kidney were planted on agar plates and on broth, but no growth resulted.

In the second case there were hemorrhages from the bowel, stomach and uterus, and death occurred on the sixth day. The autopsy showed petechial spots on the right arm and chest. The umbilicus was normal, and the cord was still adherent.

The lungs were congested posteriorly. The tricuspid and mitral valves of the heart exhibited vegetations along the edges; the foramen ovale was almost closed. The liver was fatty. The spleen was very much congested. The kidneys showed no special congestion and no hemorrhages. The pancreas, adrenals and thymus were negative. The stomach was pale, and there were no hemorrhages or ulcerations. The intestine throughout was filled with dark reddish, tarry material showing blood. There was a slight enlargement of the isolated follicles of the colon, but there were no other changes in the mucosa. About the ureteral openings in the bladder were elevated hemorrhagic areas. The uterus was filled with fluid blood; the adnexa were negative. The brain showed moderate congestion of the meninges; there were no hemorrhages into the ventricles or basic ganglia.

Cover-slip preparations from the different organs in the second case showed several large and small cocci, without a definite capsule, which stained more or less, and were scattered in groups, pairs or short chains. The cocci were often oval and here and there a distinct bacillus form was seen. Agar plates from the liver, spleen, and inferior vena cava showed no growth after twenty-four hours. The broth tube from the heart was uniformly cloudy. The agar tube from the uterus showed a continuous delicate whitish growth along the line of puncture, but no surface growth. That from the kidney had a slight growth on the surface. Preparations gave an organism varying much in size, shape and intensity of staining; bipolar staining was common. Whatever medium was tried the growth was always delicate and did not increase after twenty-four to forty-eight hours. There was no growth in gelatin. When broth was inoculated from an animal, a growth occasionally occurred—rarely otherwise. When one-eighth to one-fourth centimetre of hemoglobin was added to the broth, or a decinormal solution of KOH, until the media were alkaline, a growth in aerobic and anaerobic cultures took place.

In blood serum there was a colorless surface growth. Ascitic fluid seemed to be the most favorable medium; here the clouding was general. Milk after twenty-four hours became slightly acid, and after forty-eight hours coagulated. The normal limit of viability of the organism was from two to four days. When a small quantity of the ascitic fluid culture was

introduced into the peritoneal cavity of a pig, death resulted in twenty-four hours. There were marked subcutaneous edema and an accumulation of a moderate amount of turbid fluid in the peritoneal cavity. The liver, heart and kidneys were negative. The intestine, spleen and uterus were congested but contained no hemorrhages. There were no hemorrhages in the lungs. Cover-slip preparations gave the picture already described.

In rabbits and other animals inoculated with this organism the microscopical appearances were as follows:

The liver showed engorgement of the vessels, degeneration of the liver cells and fragmentation of the nuclei. In the rabbit, small hemorrhagic areas were found. The spleen was much congested. The pancreas showed an area of free blood in the tissue. A cross section of the ventricle of the heart of the pig showed an absence of the endothelium over one-fifth of the wall and a few diplococci in short chains. Certain areas in the lung of the rabbit showed the alveoli to be filled with blood and epithelium. Except in the lungs, the effused blood was not to be distinguished from congestion by the naked eye.

Morphologically, the organism at times suggested the pneumococcus lanceolatus or the bacillus of Friedlander, but was distinguished from them by culture peculiarities, some of which had been mentioned.

Additional Points on the Relation of Adenoids to Ear Trouble.—Frank D. Sanger (*Journal of the Alumni of the College of Physicians and Surgeons*, Baltimore, Md.)—The author begins by referring to the very marked relation existing between adenoids in the naso-pharynx and various aural troubles. He mentions the necessity of more statistics to indicate with accuracy the frequency of the occurrence of adenoids, referring incidentally to the statistical reports on this subject of Meyer, Schinegelow, Wroblewski and Kaufmann, which showed a variation of from 1 to 13 per cent. of cases of adenoids in various groups of school children examined. He recommends examination of the naso-pharynx with the finger at birth as a routine practice, and refers to the enormous percentage of cases of aural disease in children who have such growths. He thinks it is the duty of the physician in every case of adenoids to remove them at once, and not to delay in the vain hope that they will atrophy.—*Journal of Eye, Ear and Throat Diseases*, Vol. iv., No. 4.

Current Literature.

MEDICINE.

Lissner, M.: A Case of Diphtheria in the New-Born Infant. (*Archiv für Kinderheilkunde*. Bd. xxvi., H. v., and vi.)

An infant, nineteen days old, was found to be suffering from diphtheria involving the nose, pharynx, tonsils and uvula. Bacteriological examination revealed the presence of the Klebs-Loeffler bacillus. An older child of the same family was suffering from diphtheria at the time of the baby's birth. Eight hundred antitoxin units of Behring's serum were at once injected into the infant. For three days the temperature stayed 40° C. (104° F.), the voice was husky, respiration accelerated with marked inspiratory dyspnea. On the fourth day the temperature dropped to normal, the membrane disappeared without any further treatment, local or general. Three weeks later, when the child had apparently entirely recovered, a marked paralysis of the left internal rectus muscle developed, which entirely disappeared without any treatment within two more weeks.

Brodie, T. G.: The Physiological Action of Diphtheria Toxin. (*British Medical Journal*. No. 2027. 1899.)

Brodie experimented with cats to determine the immediate effects of diphtheria toxin, and to find the causes of death when this happens within forty-eight hours after an injection. If, while the blood pressure is being recorded, a broth solution of diphtheria toxin be injected into the central end of the external jugular vein, a large and rapid fall in blood pressure is produced, followed by a slower recovery to the normal height. An injection of broth in which the toxin has been destroyed causes a similar fall in pressure, but a great difference is seen in the course of the recovery. With broth alone recovery is very rapid, and if the injection be repeated a few times a condition of tolerance is soon brought about and the broth no longer causes any marked effect. With toxin broth, however, the effect is very different; recovery of blood pressure is always much slower, and, if the dose be repeated several times, may become extremely prolonged, in some cases as much as half an hour. Later injections of the toxin do not produce so great a fall in pressure, yet the fall is much more marked than when broth

alone is injected. In all of the experiments the blood-vessels failed before any appreciable change in the heart's action could be detected. Another very striking point in all these experiments was that up to quite a short time before death both the vessels and the heart were apparently in nearly a normal condition, and that the first signs of failure were very rapidly followed by complete paralysis and death. It is shown by these experiments that the chief cause of death following within forty-eight hours of an injection is due to a failure of blood-vessels and a consequent fall of blood pressure. As far as they go the experiments show the action of the toxin is on the muscular walls of the arteries and not on the nerve centres. The effect of the toxin injections on the spleen gave a contraction, followed by a gradual and persistent relaxation of the muscular tissue.

Hubbard, Thomas: Report of Cases of Peritonsillar Abscess Associated with Diphtheria. (*The New York Medical Journal*. Vol. lxx., No. 16.)

Two children contracted diphtheria from a man who had both diphtheria and suppurative disease of the throat, from which he died. One of the children showed suppuration when the diphtheria began; there were a septic phlebitis and a cellulitis. The eldest son of a large family had "sore throat," and remained at home for a few days. Two younger children had attacks of mild amygdalitis, as described by the mother. No physician was called. A few days later a younger daughter developed typical diphtheria and another had quinsy. About four days later the first was moribund from diphtheritic toxemia and the other had a large peritonsillar abscess with pseudo-membrane over most of the throat. The abscess was incised and a large quantity of pus evacuated. The toxemic patient died within an hour of the time she was first seen. The other child was given 4000 units of antitoxin and recovered after a severe illness.

A baby sister had diphtheria of the most virulent type and died within two days.

Peritonsillar abscess is a rare complication of diphtheria, though there are frequently superficial pus areas. It is possible that a mild diphtheria may be marked by a severe attack of quinsy. The clinical records of cases of throat paresis following quinsy suggest as much. These cases of mixed infection make

probable that the virulence of the different bacteria, together with the age and natural resisting power of the patient, determine which type of infection shall predominate.

Where the pus is confined, the question of early incision is an important one. The more the surface is abraded the deeper will the diphtheritic infection penetrate and the greater will be the absorption of the toxin. The pus should be located accurately, and it should then be evacuated through the tissue that is already devitalized by softening, and the vascular tissue should if possible be avoided.

Dodge, M. C.: **Transference of the Phytodermic Affections from Animals to Man.** (*The Massachusetts Medical Journal.* Vol. xix., No. 11.)

A cat who was noticed to have a scaly spot on its tail was taken care of by a child who in a few days was found to have a large number of ring-worms. In all ten people contracted the disease, but the children suffered more severely than did the adults. A puppy, who was cared for by the little girl who was first diseased, developed the same form of eruption.

Saunders, E. W.: **The Biologic Phenomena Following the Repeated Injection of Antitoxic Serum.** (*St. Louis Courier of Medicine.* Vol. xxi., No. 3.)

The ordinary commercial antitoxin possesses certain accidental properties which manifest themselves by vaso-motor disturbances. The most common is urticaria or other similar eruption. Arthropathies occur in a certain number of cases. The toxic properties are inherent in horse's serum and are not due to antitoxin, since normal serum has been known to produce the same effects. The eruptions are seen after the anti-streptococcus and the tetanus antitoxic serums. As a general rule it may be stated that infants and children in private practice are more prone to eruptions and joint pains than those in asylums. The author confirms Bolton's report of the effects of frequent injections of the serum. Severe urticaria with rigor and fever were noted. The longer the interval the less the risk of the severe phenomena. He explains these phenomena by analogy—namely the agglutinating properties of human serum. Given an individual whose blood contains a very active agglutinin, that is, a substance which precipitates the tonic element of an alien serum, the possibility of sudden death must exist. The

practical bearing of this subject should be borne in mind by practitioners. After an interval of three or four months the danger from a second injection is lessened. Large doses are used to lengthen the immunizing period.

Zuber, A. and Hallé: Case of Roger's Disease with Autopsy.
(*Arch. de Méd. des Enfants.* Vol. ii., No. 7.)

A boy two years old, well nourished, not rachitic, pale, icteric, with edema of the feet and legs, presented a liver so much enlarged that it reached down to the right iliac fossa. The spleen was not enlarged, but there was some ascites. The lungs were normal, and there was an organic systolic murmur loudest at the apex of the heart. In the absence of cyanosis and the history of anything abnormal in the child's early infancy, congenital heart disease was excluded, and the condition interpreted as mitral insufficiency with possible pericardiac symphysis. Death occurred very suddenly in an attack of intense dyspnea.

At the autopsy no evidence of pericarditis was found; but the heart was greatly hypertrophied, especially the right side. The inter-ventricular septum was incomplete, there was an old endocarditis in both ventricles and a thickening of the mitral and tricuspid valves. The liver was typically nutmeg.

The case is interesting because it demonstrates the difficulty of diagnosing a congenital cardiac lesion accompanied by asystolic and dilatation of the cavities, and because of the coincidence of an extensive old endocarditis involving the walls of both ventricles and the free borders of the valves, with an inter-ventricular communication, and the absence of pulmonary stenosis.

Bogdan and Imerwool: Gonorrheal Urethritis in Boys.
(*Journal de Clin. et de Thérap. Infantiles.* Vol. vii., No. 43.)

Having observed fourteen cases of gonorrheal urethritis during the last two years in boys between the ages of eighteen months and eleven years, the authors conclude that these cases are more frequent than is commonly supposed. When the prepuce is long and tight, the infection causes a primary gonorrheal balanitis and then, by extension, a urethritis. Besides transmission by direct contagion through sexual contact, there is another form of direct, though accidental contagion by means of linen, sponges, etc. The symptoms, course, prognosis and

treatment of gonorrhea among little boys are similar to those in adults; but complications are less frequent. Indirect transmission of gonorrhea is a possible and admitted fact.

Moizard: Typhoid Fever with Rapid Onset Simulating Appendicitis. (*Journal de Clin. et de Thérap. Infantiles.* Vol. vii., No. 44.)

A nervous girl, twelve years old, was suddenly attacked by violent pain in the right iliac fossa, accompanied by high fever and repeated vomiting. Appendicitis was diagnosed, but the fever was so very high and the general condition so good in comparison, that hesitation seem justified, especially as there was little or no resistance of the abdominal walls. On the eighth day rose spots appeared, and on the tenth day all the symptoms had subsided into a calm convalescence, without a trace of the intensity of the onset. A similar case occurred in a boy of fourteen, the pain being exquisitely localized at McBurney's point. In a few days the symptoms of typhoid became accentuated, however, and a revision of the diagnosis was made. In still another case an operation was begun, and demonstrated that the appendix was normal. Other cases are reported in medical literature. The correct diagnosis is sometimes almost impossible, especially as the Widal reaction is not often present so early in typhoid fever. The treatment required for the severe symptoms is ice applications to the abdomen and fluid diet; opium is not advisable, belladonna and chloroform water being preferable.

Ausset, E.: Barlow's Disease. (*Archives de Méd. des Enfants.* Vol. ii., No. 11.)

The earliest signs of scorbutus are anemia, discoloration of skin and mucous membranes and very flabby muscles, similarly to the early symptoms of rachitis. Moreover, both scorbutic and rachitic children suffer from chronic intoxication arising from the digestive tract. At the same time appear the pains in the limbs, becoming so intense as to cause complete immobilization of the body and simulating paralysis. Multiple tumefactions develop, due to sub-periosteal hemorrhages, and they are often accompanied by fractures of the bone underneath. While hematoma also occur in rachitis, they are almost invariably single, the multiplicity of the lesions being characteristic of Barlow's disease. Lesions of the gums are present only after the appear-

ance of teeth; in younger babies the mouth shows nothing characteristic of scurvy. Hemorrhagic spots on the skin are not constant.

Microscopic examinations of bone and cartilage from cases of rachitis and of Barlow's disease show a striking analogy; in both there is young tissue in a state of active development. The vascular dilatation existing in the specimens from cases of Barlow's disease is always a point to be noted, and probably has some relation to the hemorrhagic tendency in that disease. Furthermore, studies with the microscope have shown that in many cases of Barlow's disease when rachitis is not present macroscopically, it already exists chemically and histologically. This proves that rickets exists for some time before the bone deformities appear. The author believes in the rachitic nature of Barlow's disease.

Oppenheimer, S.: Tuberculosis of the Middle Ear. (*Medical Review of Reviews*. Vol. iv., No. 11.)

Tuberculosis of the middle ear may be primary or secondary, the primary form being rarely observed. The secondary involvement of the ear, the tympanic cavity being practically the first portion of the aural chambers to be affected, has hitherto been considered as occurring quite rarely; but recent investigation warrants the statement that tuberculosis is much more frequently a complication of the affection in other parts of the body than is generally supposed.

The tubercle bacilli may be conveyed to the ear in three ways: First, through the Eustachian tube; secondly, by the blood-vessels and lymphatic system, and, finally, from the external auditory canal, through a previously or newly-formed perforation in the membrana tympani. In practically all cases the contagium is conveyed to the part designated, *via* the Eustachian tube. Before the ear becomes involved, the vault of the pharynx undergoes tubercular change: first, an inflammatory condition of the pharynx, with soft swelling of the adenoid tissue and mucous membrane, followed by cheesy degeneration of the lymph nodes and a conveyance of the infection to the tympanic cavity.

Aural tuberculosis may occur at any age from childhood until advanced life. The comparatively mild cases, where there is little or no evidence of a tuberculous lesion, but simply

glandular enlargement or "struma," occur in children between the ages of two and twelve years. Habermann found tubercle bacilli in the purulent discharge of the middle ear in 5 out of 24 individuals, all of whom finally died of tuberculosis. Nathan, in an examination of the discharges in the ordinary suppurating chronic otitis, found the tubercle bacilli present in 12 out of 40 cases. Impairment of hearing has been found in 28 out of 294 cases of tuberculosis, with and without evidence of middle ear infection. The symptoms vary with the progress of the disease and the amount of destruction present. The first indication of the affection is the sudden appearance of pus in the external auditory canal, without any evidence of the disease being present previous to the discharge. The membrana tympani will be found to be perforated. In general the symptoms are those of a non-suppurative inflammation of a low grade with caries of the intra-tympanic bones. Subjective symptoms may be absent, the only disturbance being the discharge. This absence of symptoms is regarded as somewhat typical of tuberculous disease.

The perforation of the membrana tympani is somewhat characteristic; it is circular in outline, the edges are thick and everted; the drum membrane is bluish-white in color, glossy and edematous. If there are two perforations they will indicate more positively the result of the breaking down of separate miliary tubercles. The enlargement of the periauricular lymph nodes should be looked for before the general condition of the patient shows the disease. A microscopical examination for the tubercle bacilli should be made.

The prognosis is unfavorable as regards the hearing. The local treatment that promises the best result includes the use of chloride of zinc, iodoform and lactic acid. Curettement may be necessary. General remedies should be administered to combat the constitutional state.

Weaver, W. H.: The Primary Lesion of Tuberculosis: How Located. (*New York Medical Journal.* Vol. lxx., No. 15.)

After quoting Bovaird, Birch-Hirschfeld and other writers on the primary seat of tuberculous invasion, he draws the following conclusions:

1. That the infection comes through food or moist germs inhaled and swallowed, and possibly through infection of tonsillar tissue.

2. In the great majority of cases the infection occurs in the posterior portion of the lung apex, this being the most vulnerable point, as a direct result of the discharge of infected chyle into the vena cava.

3. Should this portion of the lung apex be healthy, and not a suitable nidus for the germs, they may pass on with the current of blood to find lodgment in some other area, unless the blood has exerted its bacteriological power over them, when they may be removed by the action of the phagocytes (Klebs.)

Greig, D. M.: Three Cases of Cheloid. (*The Scottish Medical and Surgical Journal*. Vol. v., No. 5.)

One of the cases reported is that of a little girl of two years. The child had recently recovered from scarlet fever, and towards the close of her convalescence had an attack of herpes zoster. The distribution of the herpes corresponded somewhat to that of the ilio-inguinal nerve. After the usual stages the pustules cicatrized, and about two weeks later the cicatrices gradually assumed the cheloid condition. On examination there were found to be a series of several flat, sessile tubercles, firm and slightly paler than the surrounding skin. Two or three of these were on the inner side of the right thigh and some half dozen on the left, all a little way below the genital fold; and on the left side there were two or three on the abdomen, close to the inguinal ring. The nodules were small and isolated, and there was an absence of any claw-like projections.

It is rare to have cheloid attack the scars of herpes zoster, and an accurate diagnosis depends upon having elicited a full history of the case. There is no reason why herpes zoster should be exempt when cheloid is known to occur in the scars of small-pox, acne, etc.

Marfau et Bernard: The Presence of Microbes in the Intestinal Mucosa of Nurslings. (*La Presse Médicale*. Vol. 1899. No. 91.)

Examination of animals immediately after death has shown that the normal intestinal mucosa does not contain any microbes. It is even rare to find them in the mouths of Lieberkühn's glands, and then only in the large intestine. But when an enteritis had been induced by the ingestion of arsenious acid, bacteria were found in the walls of the intestine.

Eleven cases of gastro-enteritis in infants were studied clinically and *post-mortem*. Acute forms of the disease (choleric-

form and ulcerative, as well as primary and secondary chronic varieties were represented. Microbes were found in the intestinal walls of seven cases, and were absent in four. There was no relation between the clinical and anatomical variety of gastro-enteritis and the presence or absence of bacteria. The lower portions of the digestive tract contain more organisms than the upper; in fact, it is rare to find any in the walls of the duodenum and jejunum, and then only bacilli, while the cocci penetrate both the ileum and the colon. The microbes are found at the openings of the glands, where they are most numerous, in the inter-glandular spaces, and in the solitary follicles. None were seen in the muscularis mucosæ nor in the blood-vessels.

In the ordinary gastro-enteritis of babies, the lesions are due to the action of chemical substances taken in with the food, or elaborated within the digestive tube. The lesions so produced serve as points of entrance for bacteria, and these in turn cause further pathological changes, or even septicemia. This point of view explains the inconstancy of the bacterial findings in cases of gastro-enteritis, and also the disproportion between the severity of the symptoms and the lesions in many cases, especially of the catarrhal form. It is quite possible that in these the poisons are absorbed and act so rapidly that death occurs before any deep lesions of the intestinal mucosa have time to be produced.

Moss, R. E. : The Importance of Nasal Breathing in Early Childhood. (*Texas Medical Journal.* Vol. xv., No. 5.)

Children who have nasal and naso-pharyngeal obstruction are, as a rule, much below the average for children of the same age not similarly afflicted. They take cold easily, have capricious appetites, frequently chronic cough, flat chest, and a tendency to stoop or become round-shouldered. They suffer from indigestion and malassimilation of food. They have a lowered vitality and a predisposition to disease. The results to the hearing are deplorable, as the children do not get well without treatment, and do not "outgrow" the trouble.

Three of the most important disturbances seen in connection with adenoids are chronic cough, enuresis and chorea. The author does not claim that these diseases are always due to nasal obstruction, but a great many children who have

adenoids, and are not relieved by the usual tonics and medicinal treatment, are cured by operation.

Warren, Franklin: A Case of Tetany. (*The Boston Medical and Surgical Journal.* Vol. cxli., No. 18.)

The patient was a boy three and a half years old, born in this country of Italian parents. No family tendency to tetany, or other neuropathic heredity could be traced. The parents were well and the other children were healthy.

The boy had measles when one year old and had suffered with indigestion. He had been nursed for eight months and after that had everything that he wished at the table, but he lived mostly on bread, milk and potatoes. He had been rachitic from babyhood and lived in poor hygienic surroundings.

The illness developed suddenly with muscular spasm of the lower limbs without any previous pain, tingling or premonitory symptoms. The spasm was continued whether asleep or awake, without any paroxysms. The spasms were not apparently painful but handling or moving the legs showed that they were quite tender. The muscles of the trunk, head and arms were not involved. There was no spasm of the larynx, nor difficulty in swallowing and no general convulsions. The child's intelligence was not impaired during the attack. There was no digestive disturbance before or during the illness. The knees were strongly extended and the feet extended in the position of talipes equinus with the toes flexed.

Chvostek's symptom, spasm of the facial muscle after a sharp blow upon the facial nerve, could not be obtained.

Trousseau's symptom was easily elicited during and after the attack.

Erb's symptom, increased electrical excitability of muscles and nerves, was present during and after the attack. The cutaneous reflexes were increased; the knee jerks were slight at first (owing to muscular contraction), later they were increased.

No vaso-motor or trophic changes were present. There was no temperature rise. The-urine was normal.

The diagnosis was based on the peculiar character of the spasm, its commencement in the extremities, its limitation to certain muscle groups and its bilateral symmetry. Tetanus was excluded by the absence of trismus and the presence of Trousseau's symptom. The age of the patient and the bilateral

character of the spasm and the cause of the attack excluded hysteria and there was nothing to be regarded as epileptic. For treatment the child was kept in bed. A simple diet was given and warm baths advised. Bromide of sodium was administered in ten grain doses.

The spasm, which had lasted four days when treatment was begun, disappeared in two days. For a week any attempt to use the legs brought on a temporary spasm.

As rachitis was a cause of the tetany, cod-liver oil, iron, good food and fresh air were prescribed.

The child had a condition of "coxa vara," which was due to the rachitis and not connected with the contractures of the tetany.

The special points of interest were:

1. The limitation of the spontaneous contracture to the feet, which is rare.
2. The continuous character of the spasms, which is less common than the paroxysmal form.
3. The short duration of the attack and the lack of any recurrence up to the time of the report, about two months.

Barr, James: An Address on Meningitis. (*British Medical Journal*. No. 2029. 1899.)

In an address on all forms of meningitis Barr stated that however predisposed the individual may be to meningitis the lighting up of the inflammation must in every case be ascribed to an infective process. In fact, it is a question whether insolation, traumatism and other similar causes can be looked upon as other than remote agents. It has been often stated that the presence of tubercles in the meninges is capable of setting up irritation and inflammation, but it is more highly probable that the tubercles and meningitis are the results of a common cause, the tubercle bacilli and their toxin. Then too, in many cases the inflammation is out of all proportion to the number of tubercles, and the clinical symptoms are often more pronounced than would be accounted for by *post-mortem* appearances, so that in such cases there must be a general toxemia, the brunt of which is borne by the nervous system. We must not always regard tuberculous meningitis as a fatal disease as other micro-organisms, such as the streptococci, are much more deadly in their effects than the tubercle bacilli.

Micro-organisms may reach the meninges through many

different paths, such as the ear, nose, upper air spaces and from a general or local inflammation. They may be caused by the acute infectious diseases, as scarlet fever, measles, ulcerative endocarditis, etc. It must often be doubtful as to whether the micro-organisms or their toxins are the exciting causes of meningitis. If tetanus, for example, it is highly probable that the active congestion produced by the toxin would soon be worthy of the name of inflammation if the patient survived. The rheumatic poison, which is not generally ascribed to a micro-organism, may give rise to a basilar inflammation just as it lights up a pericarditis. The pneumococcus is a frequent source of infection. It is a short-lived organism and very susceptible to treatment.

Weichselbaum's diplococcus intracellularis is the cause of cerebro-spinal fever.

Meningitis may also be due to the influenza bacillus.

In the tuberculous type of meningitis the disease appears to be primary, but if the intestinal findings at autopsies were more carefully recorded some source of the disease would be then occasionally discovered.

In the treatment of meningitis iodid of potassium and mercury should be reserved for syphilitic meningitis and not given in the tuberculous form. Antipyretics and analgesics of the newer kind are not regarded as valuable and are discarded. Bromide of potassium and chloral hydrate are also considered as of questionable benefit.

For the tuberculous and all the forms of simple meningitis the ice cap is advised. If the temperature is high cold compresses to the abdomen will help lessen the fever.

If hyperpyrexia continue it should be combated by the use of tepid or cold water sprayed over the patient.

The cold to the head should be continued until the body temperature has been for some time subnormal, and if any pyrexia should afterwards recur the ice cap is to be reapplied.

In simple and also in tuberculous meningitis internal antiseptics should be administered. A combination of Dover's powder with salol is recommended.

The bowels should be kept open by calomel and, if necessary, by enemata.

Opium should be administered for the cerebral excitement, delirium and restlessness, and while not a specific in meningitis it puts the patient in the most favorable position for getting well.

Morphin in solution should be given hypodermatically to the point of tolerance. If the nervous system were kept absolutely at rest under a free administration of morphin from an early stage of the disease the mortality would not be as high as at present.

Hawthorne, C. O.: Recovery, Except from Permanent Blindness, from the Symptoms of Cerebral Tumor. (*The Polyclinic*, London. Vol. i., No. 2.)

A girl, *aet.* sixteen years, had two years before, a serious illness extending over several months and marked by extreme pains in the head, giddiness, vomiting, retraction of the head, and gradual loss of sight. At one time there was paralysis of the right arm and leg. From these symptoms she gradually recovered, except that she remained blind. It was explained that the girl had a tumor of the brain, which two years before was in a condition of active growth, but had for some time been quiescent.

The combination of pain in the head, vomiting and double optic neuritis, of course, suggested tumor in the strongest possible manner. The only alternative open would seem to be meningitis, as the absence of any suppurative disease of the middle ear, and the recovery of the patient may be held to exclude cerebral abscess. Meningitis, however, does not produce an illness of three or four months' duration; though it may cause an optic neuritis, this is almost invariably of a much slighter degree than had undoubtedly existed here; and it is almost impossible to conceive of a meningitis causing a condition of hemiplegia, which may, on the other hand, readily result from a localized, as a tumor. The one objection to the diagnosis is the recovery of the patient, but there is no *a priori* reason why a cerebral tumor should not cease to grow; and, as a matter of fact, cerebral tumors have been found on *post-mortem* examinations, years after active symptoms have ceased. The recovery from hemiplegia is quite compatible with such a diagnosis. When the tumor is active, it will cause vascular and inflammatory changes in its neighborhood, and these symptoms will disappear when the tumor becomes quiescent. Tumors of the brain in children are more often recovered from than one would perhaps anticipate. Unfortunately, the recovery is complicated by blindness from optic atrophy. The best treatment is the use of iodid of potassium and mercurial inunctions.

Trephining the skull has been proposed to lessen the intracranial pressure.

The general health of the patient, in view of the tuberculous character of the tumor, should be sustained by cod-liver oil and good hygiene.

Wolf, Heinrich: A Contribution to the Clinical History of Tumors of the Cerebellum. (*Archiv für Kinderheilkunde*. B. xxvi., H. 5 and 6.)

The author gives a detailed account of a case of cerebellar tumor observed at the Allg. Poliklinik in Vienna in a child seven years of age. He also adds a synopsis of the symptoms of 21 cases collected from literature. Comparing the *post-mortem* findings with the symptoms, he attempts to draw conclusions as to the possibility of diagnosing the seat of the tumor, *ante-mortem*, from a study of the clinical history. In the present state of our knowledge this is impossible. Tumors may be present without exciting any symptoms at all, or at least not for a long time. Clinical experience teaches that the cerebellum is an organ, whose different portions are not endowed with different functions. The symptoms;—headache, cerebellar ataxia, vertigo, optic neuritis, convulsions, tremors, opisthotonus, dilatation or inequality of the pupils do not occur in fixed succession, nor do they admit of a conclusion regarding the seat of the tumor. His own case was remarkable for the painful acuteness of hearing, the excellent memory shown, and for the fact that lumbar puncture was performed seventeen times within nine months. Altogether 580 grammes of cerebro-spinal fluid were withdrawn. The fluid was always clear, partially coagulating on standing, containing $\frac{1}{2}$ per 1000 albumen. No unfavorable results followed the operation of puncture; on the contrary, the headache, which at other times yielded only to hypodermic injections of morphia, disappeared, the convulsions were of shorter duration, and the patient felt greatly improved. In all the reported cases, as well as in his own case, the tumor was tuberculous and in most there were tuberculous lesions of other organs.

A study of the cases reported seems to show that vertigo, tremors and cerebellar ataxia are more frequent in tumors that are located in the vermis or at least so that they press on this structure. If one of the hemispheres is affected, even though

the tumor be quite large, there may be no symptom at all, at least for a long time. Most of the other symptoms mentioned in the paper are found in those cases where the growth was large enough to press on other portions of the brain, where tumors were found in other parts of the brain or where there was tubercular meningitis.

Rennie, S. J.: Case of Snakebite Treated with Calmette's "Antivenene Serum"; Recovery. (*British Medical Journal*. No. 2029, 1899.)

The case is a report of a Hindu boy of twelve years, who was bitten by a colubrine snake. The boy's condition was grave and apparently helpless. He was treated by an injection of 12 c.cm. of Calmette's antivenene serum. Stimulants were given and artificial respiration was employed. The boy made a rapid recovery. The reporter regards the serum as the most valuable means of treatment for the patients who are bitten by the venomous snakes of India.

Fischer, Louis: The Cause and Treatment of Recurrent Laryngeal Stenosis Following Intubation. (*Medical Record*. Vol. lvi., No. 23. 1899.)

This condition is primarily caused by forcibly pushing a tube into edematous or infiltrated mucous membrane. Traumatism, from the use of a tube that is too large or from the irritation of the membrane by the removal of a tube that is covered with calcareous deposits, is the cause of the recurrent stenosis, but it may be due to paralysis of the vocal cords.

Thus an injury to the larynx can be done by a tube that does not fit; it may result from an imperfectly constructed tube, or from a perfect tube that is too large for the lumen of the larynx, although proper for the age, or from a tube that is perfect in fit and make, if not cleaned at proper intervals. The seat of the lesion that keeps up the stenosis is just below the vocal cords in the sub-glottic division of the larynx, or that portion of the organ bounded by the cricoid cartilage. Our only safeguard in preventing too much mechanical injury, as in the condition above cited, is to introduce a tube of small calibre.

Paralysis of the vocal cords is very hard to diagnose without a proper laryngoscopic examination. It comes

very late in the course of the disease, and if, after wearing an intubation tube for a short time, laryngeal stenosis recurs, it is safe to assume that paralysis of the vocal cords is not the cause of the immediately recurring stenosis.

According to O'Dwyer, tubes should be removed at the end of five days to avoid irritation from calcareous deposits. These deposits will form only on metal and not on the rubber tubes. If a tube must be introduced more than twice, the writer has adopted the plan proposed by O'Dwyer. It consists of taking a rubber tube, immersing it in a solution of hot gelatin containing 5 to 10 per cent. of powdered alum, and thus introducing the tube with this covering of alum-gelatin. The writer has also considerable experience with the beneficial results of a 10 per cent. solution of ichthyol and gelatin as a covering for the rubber tube. In the same manner a film consisting of gelatin or paraffin without iodoform, and euophen 3 per cent. solution was applied in several cases with very good results.

In one case it was necessary to intubate and extubate every three days for a period of forty-nine days. The child had apparently a follicular tonsillitis, but a culture showed the Klebs-Loeffler bacillus and laryngitis followed it. The larynx was injured by the use of a tube that was too large and ulceration resulted.

Steven, J. L.: Case of Purulent Pericarditis. (*Glasgow Medical Journal.* Vol. lii., No. 5.)

The specimen was obtained from the body of a female child, aged two and one-quarter years, who was under care in the Royal Hospital for Sick Children. The specimen consisted of the heart and pericardium, both surfaces of which were thickly covered with pus-infiltrated fibrin. The wall of the pericardial sac was greatly thickened, and its cavity much enlarged. At the *post-mortem* examination the pericardial sac was found to contain about 3 oz. of creamy-yellow pus. The heart was found to be displaced upwards and towards the right, its apex being in the fourth interspace, close to the edge of the sternum. There were old pleural adhesions at the base of the right lung, and a recent fibrinous pleurisy of moderate severity was found on the left side. The peritoneal cavity contained a small quantity of pale straw-colored fluid, and there were flakes of recent fibrin on

the surface of the liver. The bronchial tubes presented well-marked congestion of their mucous surfaces. The other organs of the body presented, on the whole, healthy characters. The interior of the heart has not been examined.

The child was admitted to the hospital on August 24, 1899, presenting the symptoms of bronchopneumonia. Fifteen months before her admission she had suffered from measles, followed by a pulmonary complication from which she recovered well. She remained well till July, 1899, when she had inflammation of the lungs, and was laid up for a fortnight. After this she never recovered her health, and was admitted much emaciated, sweating profusely day and night, and with a temperature ranging between 100° and 102° F. There was well-marked evidence of rickets. She had very little cough; but there were distinct dulness and diminished breathing at the base of the right lung behind. The left lung appeared to be healthy. The respirations averaged about 40, and the pulse about 130. The heart presented nothing abnormal, and there was no enlargement of the cardiac area. The child remained in much the same condition until September 6th, when a change for the worse was observed. The breathing became much more rapid, though not greatly embarrassed, and the pulse frequently was over 160. The temperature, which for a few days before this had been somewhat lower, never became much higher than it was at the time of admission. Perhaps, however, the most striking change was that observed in connection with the cardiac dulness. The area became much enlarged, extending upwards to near the manubrium sterni, and laterally to half an inch beyond the nipple on the left and to an inch and a half beyond the edge of the sternum on the right. There never was any doubt that this dulness indicated pericardial effusion; the heart sounds were muffled and distant, but pericardial friction was never detected. In the course of a day or two the area of cardiac dulness became somewhat diminished, but beyond this no material change took place, and the child died on September 19th without any further clinical development, except great cyanosis and lividity of the fingers and toes during the last two days of life.

The chief point which indicated the onset of the pericardial effusion was the great and somewhat sudden enlargement of the cardiac area, and this of course explained the increase in frequency

of the pulse and respiration. There was never, however, any of the extreme distress of breathing or great irregularity of the pulse which so commonly accompanies pericarditis with effusion. In this case the propriety of performing paracentesis pericardii, was not considered because the effusion was regarded as in all probability serous, and the slight diminution in the extent of the dulness which occurred after a day or two led to the supposition that absorption was in progress. Had, however, the operation been performed in the situation which a previous experience would have led one to select—*viz.*, the fourth interspace, about half an inch to the left of the sternum—the point of the needle would have entered the wall of the heart, which, as the autopsy showed, was displaced upwards and towards the right, and somewhat firmly fixed in its abnormal situation. Another point of interest in the case was the evidence afforded by the autopsy of the tendency of the other great serous cavities to partake in the acute inflammation which had so seriously involved the pericardium. This was a feature of purulent pericarditis of which he had already had experience. Had it been known at the beginning that the effusion was purulent, the pericardial sac could have been opened and drained.

Hopkins, F. E. : A Case of Hysterical Larynx. (*The New York Medical Journal.* Vol. lxx., No. 23. 1899.)

The patient was a large, rapidly growing, anemic, nervous girl of fifteen, who did not appear like a hysterical subject. She was put under professional care for a peculiar spasm of the larynx. There were no other hysterical manifestations. Three months previous she began to suffer with pertussis. The whoops of the paroxysms increased in intensity so that after two months there was a high pitched, piercing sound produced by strong inspiration, with the vocal cords tense. The sound was like the squeal of a pig. The cough ceased but the squeal remained and ultimately became both inspiratory and expiratory. The paroxysms were preceded by a sense of tickling and irritation in the throat, which caused first a slight cough, then followed the terrifying sounds. The paroxysms occurred many times in the day but rarely at night.

Examination showed that there was no cause for such explosions. There was a small mass of adenoids and some lymphoid hypertrophy at the base of the tongue. After the examination

the girl was better for some weeks but two months later the paroxysms recurred. The galvano-cautery was applied to the base of the tongue. This was followed by a period of improvement. The spasmodic seizures returned again and became at times so violent that general anesthesia had to be resorted to for their relief. Cocain solution used locally seemed to shorten the attacks. Conium and morphin were also tried. The case at last yielded to intubation; the tube was retained less than an hour and there has been no recurrence of the symptoms.

Hopkins, F. E. : Recurrence of the Tonsil after Excision.
(*The New York Medical Journal.* Vol. lxx., No 23. 1899.)

M. M., thirteen years old, of good family history, had the tonsils and some adenoids removed under ether. The operation was considered thorough, and an examination three weeks later justified this opinion. The child's general health was not of the best, and previous to the operation she had suffered repeated attacks of severe amydalitis. Although attacks of similar character occurred after the operation they were of less severity. Five months after the operation there was acute swelling of the left tonsil, and shortly afterwards it was removed. It was found on examination to be simply a hypertrophy. After a full consideration of the literature of the subject, it is seen that there is a wide variety of opinion as to the frequency and cause of recurrence.

It would appear that among the causes of recurrence, aside from imperfect operation, are a tuberculous or specific dyscrasia and an acute inflammation of the stump.

In the discussion that followed the reading of Dr. Hopkins' paper before the American Laryngological Association there was an agreement of opinion that the tonsils should be thoroughly removed to prevent this return.

Hardenburgh, D. B. : Hypertrophies in the Tonsillar Ring.
(*Medical Record.* Vol. lvi., No. 22. 1899.)

Besides the faucial, lingual and pharyngeal tonsils, the so-called tonsillar ring, or ring of Waldeyer, is completed by small cushions of lymphoid tissue about the orifices of the Eustachian tubes. The tendency toward the disappearance of the pharyngeal tonsil in the first few years of life, and of the faucial tonsils at puberty, as well as the fact of their larger rela-

tive size in the embryo, strengthens the contention of their rudimentary and obsolete nature. In hypertrophy there is an increase in all the tissues that constitute the structure. There is a hereditary element in causation. The most frequent cause is repeated and neglected attacks of catarrhal inflammation of the nose and throat. The infectious diseases of childhood are also causes.

All these hypertrophies should be removed, and quotations are made to prove that the generally accepted opinion of the advisability of their removal had been thoroughly considered. An anesthetic is not advised. The lymphoid masses of the pharyngeal tonsil may return, probably about 3 in 100 cases observed during the course of one year.

Murdoch, F. H.: Pneumonia Following a Case of Sporadic Cerebro-Spinal Meningitis. (*Philadelphia Medical Journal*. Vol. iv., No. 21.)

A healthy boy, eight years of age, was taken suddenly ill and when seen, his temperature was 101° F., pulse 120, his pupils were dilated and he complained of pain in his head. The following day the condition was unchanged, but there was rigidity of the muscles of his neck. An examination of the lungs showed them to be clear.

The case was diagnosed as one of cerebro-spinal meningitis. On the third day pneumonia developed at the lower lobe of the left lung. The symptoms of the meningitis disappeared and the pneumonia ran a usual course with a good recovery. The bacillus present was probably the pneumococcus.

DERMATOLOGY.

Hutchinson, Jonathan: Notes Respecting Some of the Cases Attending in the Surgical Clinic. (*The Polyclinic*, London. Vol. i., No. 2.)

A boy of the age of eleven, who had previously been in good health, had his four limbs covered symmetrically with bullæ and at the same time inflamed mouth and sore lips. He had also on the left side of his trunk, coming up to the middle line but not passing over it, two groups of spots arranged exactly like those of herpes zoster. These were in the condition of abortive vesicles, were not bullous, and were not at-

tended (as is usual in zoster), by any other groups in the back or side of the chest. Some of the bullæ on the arms were as large as marbles, and all were surrounded by an abruptly limited area of deep congestion. In none did the margin of the congested patch show vesication; in every instance the bullæ was central. The palms and soles, the buttocks and shoulders were all affected, but on the trunk itself, excepting the patches described, there were none whatever. The right side of the lower lip was much swollen, and he could scarcely open his mouth. The right side of the tongue was excoriated. The eruption had begun about ten days before the boy was seen and had been first observed on the hands. It rapidly, however, became general. It was claimed that the case was illustrative of the link between pemphigus and herpes. Herpes being an eruption distributed along a nerve and having a tendency to spontaneous recovery; while pemphigus may be in part neurotic, it shows no definite nerve distribution, and it goes from bad to worse if not treated. There appears to be a bond of connection between the two. Cases of characteristic pemphigus are sometimes preceded by many attacks of herpes in the mouth. In the patient there were severe herpes labialis, patches on the tongue not unlike zoster (unsymmetrical) and a symmetrical bullous eruption on all the limbs. The bullæ were not exactly like those of pemphigus, for the vesication in no instance covered the whole area of congestion. From the sudden onset and the distribution of the eruption there were evidences of the neurotic character of the eruption and the likelihood of its spontaneous subsidence. A purgative was administered and quinin ordered. In four weeks all the bullæ had dried up and no new ones appeared. Some of the sores were rather slow in complete healing, more especially the sore on the lip, which together with the zoster-like patches on the abdomen, remained for about three weeks.

SURGERY.

Huntington, Thomas W.: **Collateral Considerations Relating to Appendicitis.** (*Occidental Medical Times.* Vol. xiii., No. 11.)

With some other cases, Dr. Huntington reported a case of appendicitis in a girl seven years of age. Three years previously she had suffered from a sharp attack of peritonitis, which without doubt originated in the appendix. From that time there

was a record of repeated recurrences of obscure bladder troubles, attended by frequent, painful micturition. Obstinate constipation had been a constant symptom, but aside from the fact that the use of cathartics always caused an exacerbation of bladder pains, it had attracted little attention. At the operation the appendix and adjacent bowel were found deeply imbedded in a mass of adhesions from which they were freed with great difficulty. Upon further search several coils of ileum were found intertwined, glued together and firmly adherent to the bladder wall. Recovery was prompt and the child has remained perfectly well since the operation.

Another case reported was that of a girl aged fourteen years for chronic appendicitis of a mild character. Severe, non-localized abdominal pains and obstinate constipation, extending over a period of one or two years, were the main symptoms in her case. The appendix, though pronouncedly diseased, was removed without great difficulty. The cecum, adjacent ileum, and part of the colon were enshrouded in a mass of fibrous tissue, which was very firm and highly organized. After a careful dissection the bowel was freed, the wound was closed, and the patient recovered rapidly. Within a month many of the old symptoms recurred and the child returned to a condition of chronic invalidism. She was watched carefully for about a year, when she was subjected to another operation. A thick, firm sheath of fibrous tissue enveloped the descending colon and the sigmoid flexure. This so constricted the bowel as to lessen its calibre and prevent natural peristalsis. An inspection was made of the site of the former operation and showed it to be in excellent condition and the intestine freely movable. Since the second operation the girl has remained well and the bowel movements have been normal.

After drawing some conclusions from the consideration of this and other cases, he stated that whenever the presence of adhesions had been detected during operation, thorough exploration of the general peritoneal cavity should be made, to avoid the necessity of a secondary operation for their relief.

Henry, W. O.: *Most Successful Treatment of Spina Bifida.* (*American Journal of Surgery and Gynecology.* Vol. xiii., No. 5.)

After recounting the forms of spina bifida and the methods of treatment, he gave as his conclusions:

First. Not all cases of spina bifida require either injections

or other operative treatment. If the protrusion is small and the skin over it is not too thin, it may be crowded into its bony canal and held there by a firm compress.

Second. The very large majority of cases demand some radical treatment, and the percentage of cures in skilful hands will not fall below 70 or 80 per cent.

Third. The operation of excision is both more scientific and successful than the injection method.

Fourth. When operation is needed, no child is too young for a successful operation.

Fifth. When paralytic or other nervous symptoms arise from spina bifida, no matter how old the patient, benefit may accrue from a skilful operation.

The case of H. C., a nine-pound boy, healthy and well-formed, except that he had a spina bifida in the lumbo-sacral region. The boy was first seen when thirteen days old, when there was a protrusion as large as a good-sized orange, which had been increasing in size since birth. The skin over it had become exceedingly thin and was beginning to ulcerate, and it looked as though it might burst at any moment. The tumor had a wide base. Operation was undertaken, the head of the child being placed lower than the buttocks. Chloroform was administered, a trocar was introduced and the fluid drawn off, it being found in several distinct sacs. After evacuation of the fluid was completed an incision was made in the median line, which exposed the cavities and the spinal cord. The entire membranes were then carefully dissected from the superimposed tissues down to the spinal canal, where the opening was large enough to admit the end of the thumb. The mouth of the sac was tied with chromicized cat-gut, and then pushed back with its contents into the canal. The opening in the membranes was tied with cat-gut, which prevented the escape of much cerebro-spinal fluid. The fascia, muscles and skin were then firmly sewed over the spinal opening. There was a little loss of blood, almost no shock, and the baby stood the operation well. The day of the operation the temperature went up until at five o'clock P.M., it was 104° F.; pulse, 150. The next morning the temperature was $104\frac{2}{8}^{\circ}$ F.; the fontanelles were distended and the baby showed some nervous symptoms, as twitching of the muscles and sudden starting. In a short time he had three convulsions, one quickly following another. The

head was elevated and ice applied. The temperature gradually declined, and the tension of the fontanelles became less from day to day, and there were no more convulsions. There was some superficial suppuration in the wound, which disappeared with proper attention, so that in about three weeks from the time of the operation the baby was taken home in good condition. It will be necessary for him to wear a suitable compress over the site of the tumor.

Southam, F. A.: Two Cases of Ununited Fracture in Children. (*The Medical Chronicle, Third Series, Vol. ii., No. 2.*)

CASE I. *Non-union of tibia and fibula after simple fracture; resection and wiring of fragments; fibrous union after four and a half years.*

A girl of seven years was admitted to the hospital with a simple fracture of the right tibia and fibula, at the junction of the middle and lower thirds. The fracture was treated in the ordinary way. At the end of three weeks the temporary splints were removed and a plaster of Paris bandage was applied. When this was removed, after a month, it was found that the union was fibrous, considerable mobility being present at the seat of fracture. A plaster bandage was reapplied and renewed from time to time during fourteen months. The bones were "hammered" and rubbed under an anesthetic. Sixteen months after the accident the ends of the bones were exposed and resected, the periosteum being preserved as far as possible. The bones were found to be thinned and tapering and bound together by firm fibrous tissue. As the operation was not successful a second operation was attempted after six months. The ends of the tibia were sutured with silver wire, but the ends of the fibula could not be brought together because of the wasting of the bones. The condition remained the same after the second operation.

Three years after the injury the child was again admitted for treatment. As she had been allowed to bear some weight on the leg a sharp anterior curve had developed at the seat of fracture. The leg was straightened under an anesthetic and a strong leather splint was applied.

When the case was reported, four and a half years after the accident, there was a wasting of the leg below the knee, and the limb was two inches shorter than the opposite one.

There was a slight anterior bend at the seat of injury and the ends of the tibia were united by a firm fibrous tissue, very little movement being possible and the union being much stronger than it was a year previous. A distinct gap was to be felt in the shaft of the fibula and there was a tendency to eversion of the sole of the foot, giving somewhat the appearance of the deformity met with in a Pott's fracture. All the time the girl was under observation she was given tonics and the best of care.

CASE II. *Non-union of the tibia and fibula after operation for correction of curvature, two subsequent osteo-plastic operations (bone-grafting) fibrous union; amputation.*

The patient was a boy aged six years, who was operated upon when two years old for a curvature of the right leg below the knee. It was uncertain what operation was performed, but as union did not take place another operation was undertaken when the boy was four years old, but this was also unsuccessful.

The condition of the limb was as follows: It was wasted and shortened to the extent of three inches; at the junction of the middle of the lower thirds there was a distinct gap of about an inch in the shafts of both tibia and fibula. There was a "flail" movement and the limb was useless.

Two osteo-plastic operations were performed at an interval of six months; bone grafts, taken first from the femur of a rabbit, and afterwards from the foot of a healthy child, were inserted between the ends of the bones, which had been refreshed and freed from the fibrous tissue in which they were imbedded. The periosteum was preserved. Osseous union did not result and the leg was amputated below the knee.

Examination of the limb after amputation showed mere fibrous union; the bone grafts had entirely disappeared, and there was no attempt at any formation of osseous tissue between the ends of the bones.

It is somewhat strange that in most cases of non-union in children there is an absence of any cause, either local or constitutional, to account for the non-union. It would appear that in children—contrary to what is met with in adults—the tibia and fibula are the bones which are most commonly the seat of non-union after fracture. D'Arcy Power collected 72 cases of non-union and in 45, or 62 per cent., the tibia and fibula were the bones affected.

The treatment of ununited fracture in children is very unsatisfactory. In Power's report 33 cases of ununited fracture of the tibia and fibula were operated upon; bony union resulted in only 9.

Hitchcock, Chas. W.: A Case of Triple Fracture of the Forearm, Compound Fractures of the Radius and Ulna United with Silver Wire. (*The Medical Age*. Vol. xvii., No. 22.)

A boy of fifteen years had his left arm caught in a wheel which was revolving rapidly. The result was a triple fracture, with lacerations of the soft tissues.

There was a jagged, transverse fracture of the left ulna, at a point about two inches above the wrist, the lower end of the upper fragment protruding an inch and a half through an extensive laceration of the soft tissues. The bone was denuded or its periosteum. There was an extensive laceration on the extensor surface of the hand and one tendon was torn. The fracture could be easily reduced, but it could not be kept in place.

The radius was fractured so as to involve the wrist. There was displacement of the fragments and some impaction. As it was impossible to determine the exact condition of the injured arm an incision was made in the radial side of the wrist. It was then seen that the lower fragment of the radius, a piece about $1\frac{1}{2}$ inches long, had been broken off obliquely. The upper fragment had then been pressed into the lower with such force as to fracture it longitudinally. As these fragments could not be kept in place they were drilled and sutured with silver wire.

The external wound was closed with silk worm gut. The ulnar fracture was also united with the silver wire. The fracture at the junction of the middle and upper thirds of the radius was easily kept in apposition without suturing.

The boy made a good recovery with excellent motion of the wrist joint, except that supination was impaired.

The silver wire used for the radius was left in place.

Lautenbach, L. J.: Treatment of Nasopharyngeal Adenoids. (*The Journal of the American Medical Association*. Vol. xxxiii., No. 21.)

At the meeting of the association held in June, 1899, Dr. Lautenbach presented a paper with the above title as a continu-

ation of the discussion on the same subject at the meeting of 1898.

He stated that he no longer used an anesthetic for the removal of adenoids, but employed the nail of the right index finger, and when the nail was broken or the finger sensitive he supplemented it by an artificial finger nail. He had discarded all the various curettes and forceps.

In a few words, the method consists in the examination for adenoids by the index finger and, if discovered, their immediate removal, without general anesthesia, while the examining finger was in place, by the finger nail. If this failed to remove them, then their removal was to be accomplished by means of the jointed steel finger nail. This was to be followed by careful digital examinations of the post-pharyngeal region, every second or third day for about a week, when, if no growth appeared in the cicatrix, recurrence need not be feared. There was but slight bleeding at the time of the operation, and but little pain.

The discussion that followed the paper was participated in by Drs. Theison, Mayer, Quinlan and others. All favored general anesthesia for children in preference to the operation favored by the reader of the paper.

Livingstone, T. H. : A Case of Compound, Comminuted Depressed Fracture of the Calvarium, with Fracture of the Base of the Skull. (*British Medical Journal.* No. 2030. 1899.)

A girl of ten years was injured by a runaway horse. She sustained a depressed, compound, comminuted fracture of the calvaria just about the junction of the parietal, temporal, sphenoidal and frontal bones behind and above the external angular process on the left side. The scalp was very much torn and lacerated, and was extremely dirty; a small portion of brain matter protruded, and fragments of bone were driven into the brain substance. Serum tinged with blood trickled away from the right auditory meatus, and there was considerable livid effusion into both eyelids. There was no bleeding from the nose nor any conjunctival ecchymosis; she vomited blood which had probably trickled down the Eustachian tube into the pharynx from a fracture of the base in the middle fossa which had involved the petrous portion of the temporal bone.

There was considerable difficulty in raising the depressed portion of the fractured bone. A small piece of dirty bone was

removed along with a small portion of brain matter. The scalp wounds were stitched with silk worm gut, except over the fractured region where a little packing of iodoform gauze was inserted. The right ear was cleansed with boric acid solution and packed with sublimate wool. Ice was applied to the head, and, owing to the condition of shock, brandy was injected *per rectum*. The coma lasted for a day and a half when the patient attempted to speak. There was no paralysis of any of her limbs, but the right side of her face was paralyzed. She was at times emotional and hysterical. In two weeks after the accident she was quite conscious. About three weeks afterwards all of the face muscles of the right side were found to be equally paralyzed, and there was a loss of taste in the anterior two-thirds of the tongue on the right side, showing that the lesion in the seventh nerve was in the aqueduct of Fallopius. Hearing was defective on the same side. Bone conduction was absent showing that there was a lesion of the auditory nerve itself. As the injury was on the *left* side of the skull, the fracture which involved the petrous portion of the right temporal bone was by *contrecoup*.

Other symptoms were not so easy to explain, namely, paralysis of the orbicularis palpebrarum on the left side, along with dilatation of both pupils, neither of which reacted to light or accommodation, without ptosis, squint or diplopia.

The girl, seven weeks after the accident, was able to walk and run quite well and her speech was almost normal. The paralysis of the right side of the face and the deafness persisted.

HYGIENE AND THERAPEUTICS.

Chapin, H. D.: Home Modification of Cow's Milk for Infant Feeding. (*The New York Med. Journal.* Vol. lxx., No. 19.)

Two things are desirable in the modification of cow's milk for infant feeding: First, a fairly accurate method of attaining the proper percentages of the various ingredients; second, a method of rendering these ingredients, as nearly as possible, in the same physical condition as they are found in woman's milk. Successful artificial feeding depends largely on the skilful combination of these methods so as to adopt them to each individual case.

Milk bottled in the country and kept cool during the twenty-four to thirty-six hours before delivery is subjected to the conditions necessary for successful "deep-setting" creaming, and usually contains a layer of cream in the neck of a quart bottle between three and four inches deep, measuring from the top, or about six fluid ounces. The cream in the neck of the bottle is not uniform in composition. Six samples were drawn from the creamy layer of a quart of 5 per cent. fat milk. The layers tested 28 per cent., $24\frac{1}{2}$ per cent., $21\frac{1}{2}$ per cent., $16\frac{1}{2}$ per cent., 15 per cent., and 11 per cent. fat. The six fluid ounces of cream removed averaged $17\frac{1}{2}$ per cent. fat. The remaining skimmed milk tested 1.2-5 per cent. fat. A natural separation takes place in milk that is placed in bottles and preserved from fermentation for a certain length of time by being kept cool. This is exactly how most high-grade milk is served by the dealers. In the home modification of milk by means of this bottled milk the cream is readily and accurately separated from the under milk by means of a dipper measuring exactly one fluid ounce.

While it is not easy to test the proteids in milk, it is taught that they nearly equal the fat in milks up to $4\frac{1}{2}$ per cent. fat. Avoiding small fractions, cream with 12 per cent. fat would have three times as much fat as proteids (12 per cent. fat and 4 per cent. proteids); 10 per cent. cream, would have two times and a half as much fat as proteids (10 per cent. fat and 4 per cent. proteids); 8 per cent. cream would have twice as much fat as proteids (8 per cent. fat and 4 per cent. proteids); 6 per cent. cream would have one time and a half as much fat as proteids (6 per cent. fat and 4 per cent. proteids). Almost any desired percentage of fat or proteids can be procured by diluting these creams, using the cream that contains the desired ratio between fat and proteids. Having at hand a bottle of milk which has separated into two layers, one very rich in fat and the other very poor in fat, the problem of getting a cream of any desired percentage of fat consists in mixing the very rich milk with enough poor milk to reduce its percentage of fat to the point desired. In practice, creams containing 12 per cent. and 8 per cent. fat are most useful.

Where it is desired to have fat three times the proteids, make a 12 per cent. fat cream by taking the first nine dippers of cream and milk from a quart bottle on which the cream has

risen, and mix. Result, nine fluid ounces cream—about 12 per cent. fat, 4 per cent. proteids, 5 per cent. sugar. What is not needed of the nine fluid ounces can be put back into the bottle. For any quantity of food containing fat three times the proteids, use this formula with 12 per cent. cream.

Dilution of 12 per cent. cream = 12 per cent. divided by desired percentage of fat.

Fluid ounces 12 per cent. cream = desired fluid ounces food divided by dilution.

Sugar = desired fluid ounces food divided by twenty.

Diluent = desired fluid ounces food minus fluid ounces 12 per cent. cream.

Chapin further suggests the use of dextrinizing agents to be mixed with gruels that may be added to milk to render the casein more fusible.

Gardner, F. H.: *The Hypodermic Syringe in Vaccination.* (*Journal of Medicine and Science.* Vol. v., No. 12. 1899.)

The use of the hypodermatic needle and syringe is urged for cases where there has been failure from previous vaccination and to save time. The tube vaccine should be employed and the injection should be made just under the skin, care being taken not to place the vaccine too deep in the tissues.

Fotheringham, J. T.: *Infant Feeding and Infantile Diarrhea.* (*Dominion Medical Monthly.* Vol. xiii., No. 4.)

In a paper prepared for the Canadian Medical Association, Dr. Fotheringham stated that taking the figures for 1897 for Toronto, as a basis, it is seen that 31.23 per cent. of all deaths in Toronto occur under one year, and that 5.14 per cent. of all deaths are due to diarrhea under one year. Of the total deaths under one year (977) diarrhea causes 161, or 16.48 per cent.

After an elaboration of the pathological conditions of infantile diarrhea he said that the first treatment in all cases where milk has been used is the administration of sterilized water made palatable by a little salt and the addition of milk sugar.

After the first twenty-four hours or so, it may be well to attempt the use of some nutritive fluid. If the stools are not specially foul albumens may be given in the form of white of egg, diluted with ten times its bulk of sterilized water. Beef

juice is also a suitable food when added to water and given in teaspoonful doses.

As to the farinaceous foods they may be made from barley, rice, sago, tapioca, corn starch or arrow root. Thorough boiling is necessary to cause diastatic change.

Lengthen the intervals between the feedings, but give water freely.

The return to milk should be tentative. Casein should be allowed last. The fat may be given first as cream well diluted. The cream should never be bought as such but should be the cream from the top of milk that has stood for five or six hours.

A contraindication to meat broths lies in the fact that they are apt to be kept too long. Another contraindication to their use is foulness of the stools or a great frequency and copiousness.

Sponging with cool water is very beneficial. Sometimes it is necessary to apply a hot water bag to the feet even if there is fever.

For pain in the abdomen hot compresses are to be applied. Fresh air is most important. A child should be kept in the open air. All diapers should be boiled.

In the medicinal treatment the first indication is for a purgative. Castor oil is the best unless there is marked gastric irritability. The only other purgative of repute is calomel.

As a stimulant, alcohol stands first. It is almost always needed, especially after the acute stage. Brandy is preferable to whiskey. Aromatic spirits of ammonia is a good stimulant. Antipyretics, as a class have but small place in the treatment of diarrheal disorders. Quinin disturbs the stomach. Phenacetin is at times good to lessen nervous irritability but not as an antipyretic.

Bismuth salicylate is the most satisfactory of the antiseptics, but all of the intestinal antiseptics are in a measure depressing and their use may be avoided by the administration of large quantities of water. Astringents are theoretically useful, but in practice not much is to be expected of them.

Tannigen seems to be of service in persistent chronic diarrhea with fermentation in the small intestine. Digestive agents are useful, either to predigest food or as medicine.

Opium is of great importance but it should never be administered until a purgative has been given. The dose should not

be repeated until the effect of the first dose, if full, has passed off. Opium should be given alone and not in a mixture. For tenesmus it is best used as laudanum with starch for rectal enemata. Irrigation of the colon with a normal salt solution is an excellent method of clearing the bowel. In cases of collapse and prostration it ranks only second to interstitial injection as a stimulative and restorative measure.

Wende, Ernest: The Cause and Prevention of Infant Mortality. (*Medical Record.* Vol. lvi., No. 20.)

Dr. Wende read a paper with the above title at a meeting of the American Public Health Association. He paid particular attention to the milk industry, which, he said, should be under both State and municipal control, acting in unison. He advocated a license system, a systematic inspection of cattle, sanitary buildings for the herds, with separate milking and stabling quarters. He also included in his suggestions the scrutiny of the water supply, standard feeding, health of employees, cleanliness and care of the milk. The use of swill food should be prohibited. The municipal control should prevent intercourse with houses containing contagious diseases, the exchange of milk jars, and the refilling of jars *en route*.

Lipes, H. Judson: The Treatment of Follicular and Suppurative Amygdalitis and the Angina of Scarlet Fever by the Injection of a Solution of Carbolic Acid. (*The New York Medical Journal.* Vol. lxx., No. 17.)

Heubner and Seitz are quoted as suggesting and using carbolic acid in the angina of scarlet fever. The solution used varied in strength from 1 to 3 per cent. No bad effects were noted though the danger of serious gangrene was considered. The cases treated were five of scarlet fever, six of diphtheria, three of suppurative, four of simple and three of follicular amygdalitis. All but two of the cases were among children from eight months to fifteen years of age.

No good effects were observed in the cases of diphtheria. It was a question whether the method may be harmful in diphtheria by destroying the correlative influence of the staphylococci on the Klebs-Loeffler bacilli. The scarlet fever cases were immediately relieved. There was a prompt reduction of the fever and an improvement in the general condition.

The cases of amygdalitis, simple, follicular and suppurative, were benefited, notably, those that were seen early.

For the children it was necessary to use a mouth gag and a tongue depressor. A specially constructed needle, that could be introduced without piercing the tonsil too deep, was employed.

McGuire, Hugh: Hygiene of the School Room. (*Virginia Medical Semi-Monthly.* Vol. iv., No. 15. 1899.)

After a general statement of the needs of school hygiene, the author concludes with the following:

Children should not be allowed to enter the public schools until they have undergone a physical examination by a competent physician. This examination should determine whether their entrance will endanger either the health of the applicants or that of their fellow pupils. There are many instances where the confinement attendant upon school duties has shortened the life of a weak and puny scholar, and thousands of cases where a consumptive's presence has been the means of infecting strong and hearty children.

Hanson, D. S.: A Case of Tetanus Treated by Hypodermatic Injections of Carbolic Acid in 2 per cent. Solution. (*Cleveland Medical Gazette.* Vol. xiv., No. 12.)

A boy of fourteen years, who was large, strong and vigorous, shot himself in the foot. Nothing was done to clean the foot, and nine days after the accident some rigidity of the muscles of the neck and jaws was noticed. Ten days after the accident the jaws were closed and general rigidity was well marked. The wound was opened, cleaned of all irritating material and dressed antiseptically. Acting on a report of Baccelli's cases—32 in number—treated by carbolic acid in 2 per cent. solution, without a death, the same treatment was adopted. The boy received three injections a day for the first nine days. As the urine began to look smoky, only two injections a day were given for the next two weeks. Small doses of eserine were given with each injection during the latter period. The boy made a complete recovery.

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Original Communications.

DILATATION OF THE COLON.*

BY F. T. STEWART, M.D.,

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By DR. HAND.

Noteworthy in the recent literature on this subject are the articles by Fitz (*American Journal of the Medical Sciences*, August, 1899), Griffith (*id.*, September, 1899), and Concetti (*Archiv. für Kinderheilkunde*, Band xxvi., Heft, 7 u. 8). The last named found in the case reported by him *in extenso* a deficiency, probably congenital, in the muscular coat of the descending colon with hypertrophy of the walls above this region. While some writers think that dilatation of the colon is sometimes acquired, the majority are inclined to view it as always congenital. The case which we report was undoubtedly so.

W. C., male, six years old, was admitted to the Children's Hospital July 21, 1899, while I had charge of the medical wards for Dr. Stengel, to whom I am indebted for the privilege of making this report.

The family history has nothing bearing on the case, the parents and six other children being well; no casual relation is thought to exist between an attack of lead poisoning in the father before the birth of this patient and the latter's trouble.

This child was fed from birth on condensed milk (one to five), with a few breast-feedings daily. On admission to the Children's Hospital the statement was made that distension of the abdomen was first noticed at the end of the second year; on admission to the Pennsylvania Hospital six weeks later the

* Read before the Philadelphia Pediatric Society, December 12, 1899.

parents said that the abdomen had been distended from birth. Careful inquiry at the child's home elicited the statement from a very intelligent older sister, aged now about twenty years, that the distension was first noticed when the child was three months old, but that purgatives and enemas had been in constant requisition from birth, owing to the obstinate constipation. Sometimes three weeks would pass without a bowel movement, the fecal matter never being hard, but semi-solid and at times liquid. During the second summer there was a severe attack of summer complaint that nearly ended fatally. At the age of four and a half years he was in the Pennsylvania Hospital with a croupous pneumonia of the base of the right lung; the hospital notes which Dr. Stewart kindly looked up for me, show that the child's abdomen was at that time very much distended and that there was a constant diarrhea during his stay in the hospital. The parents stated that rectal injections of soap-suds and water were without effect during the periods of obstinate constipation. As a rule the boy's appetite was good and he complained of no pain.

On admission to the Children's Hospital he was found to be an undersized, anemic boy, with marked dyspnea in any position and with the abdomen so greatly distended that the skin was stretched and tense to a degree that was painful to the beholders as well as to the boy. The note on percussion was that of a dull tympany in the flanks as well as anteriorly, the areas of hepatic and splenic dullness being present but diminished in extent. The chest gave negative signs except for the displacement upward of the apex-beat. Digital examination showed the rectum to be empty, the internal sphincter being rather tight. Measurements of the abdomen gave the following circumferences:

At the level of the iliac spines, - - -	21 in. (53.5 cm.)
" " " umbilicus, - - -	26 in. (66 cm.)
Midway between umbilicus and ensiform,	28 in. (71 cm.)
At level of ensiform cartilage, - - -	26 in. (66 cm.)

Peristaltic movements were seen the day after admission, and that night there were three bowel movements, followed in the morning by vomiting and pain in the left hypochondrium. Injection of 1200 c.c. of water brought away liquid and highly offensive fecal material; the procedure, however, caused so

much distress to the boy that it was omitted from all subsequent treatment.

The diagnosis being perfectly plain, treatment was instituted, consisting of massage of the abdomen with olive oil, the application of the galvanic current to the abdominal muscles and the hypodermic injection of strychnin, $\frac{1}{10}$ of a grain once daily, in the abdominal wall along the line of the colon. The tenseness of the skin over the abdomen caused these injections to be followed by pain and soreness, so they were given later in the arm with quite as good results.

Bearing in mind the length of time that the dilatation had existed, it was thought impossible that the colon could contract to anything like a normal condition, so the aim of treatment was to ameliorate the wretched state of the child, improve the local condition as much as possible, and build him up so that surgical measures could be speedily resorted to. It was extremely gratifying to all connected with the care of the child to note the rapid improvement in all points. The bowels moved frequently, four or five times a day, the appetite was normal, the dyspnea ceased, and the abdomen, as the measurements show, decreased in size and became flaccid and free from tenderness. The only symptom complained of was subjective pain in the left hypochondrium. Two days after treatment was instituted the reduction in the central measurements was 1.5 cm. The last measurements taken in the hospital two weeks after the start of treatment were as follows:

Iliac spines	-	-	-	-	51	cm.	decrease of 2.5	cm.	
Umbilicus,	-	-	-	-	54	cm.	“	12.0	cm.
Between umbilicus and ensiform,					58.5	cm.	“	12.5	cm.
Ensiform,	-	-	-	-	61	cm.	“	5.0	cm.

The patient was now in fair condition for surgical interference. Most unfortunately a small epidemic of diphtheria arose in the hospital, and surgical operations were temporarily postponed. Before disinfection was completed the boy was removed from the hospital and was taken to the country, where he rapidly relapsed to his former condition, in which state he was admitted to the Pennsylvania Hospital about ten days after leaving the Children's.

BY DR. STEWART.

Dr. J. C. Wilson, for whom I was substituting during the patient's sojourn in the Pennsylvania Hospital, kindly permits me to report this case:

W. C. was admitted to the hospital August 30, 1899; seventeen days later he died. Eight days before admittance tenderness of the hands and feet was noticed by the parents. Examination revealed the following: On the scalp were several spots of alopecia, which were the seat of superficial indolent ulcers. The face was round and fairly plump, the tongue covered with a pasty, white coating, except where the prominent red papillæ projected, the lower gingival margin eroded and the post-cervical lymph nodes palpable.

The thorax was thickened and foreshortened, the costal margins flaring widely. Mensuration at the nipples showed a circumference of 55 cm. The cardiac apex visibly pulsated in the third interspace, mamillary line. Liver-dulness could be appreciated over the fifth and sixth ribs; on the left side tympany extended up to the fourth rib.

The abdomen was balloon-shaped, tense and tympanitic, and measured 61 cm. at the pouting umbilicus; the largest circumference was 65 cm. Superficial veins could be plainly traced under the thin skin, and peristalsis seen, heard and felt. The festoon of the dilated transverse colon could be readily mapped out by palpation, but no abnormal resistance, tenderness or fluid obtained. Rectal exploration failed to find any constriction, the ampulla being enormously distended, filling the true pelvis. Introduction of the rectal tube resulted in the escape of a large quantity of flatus and a small amount of yellow liquid feces; pressure on the abdomen would sometimes yield the same result.

A trace of albumin, but no casts, was found in the urine. The feet were swollen and painful, the finger-ends clubbed, reddened and tender, and numerous red spots as large as pin-heads were scattered over the extremities, probably the result of previous hypodermatic injections of strychnin.

For six days the temperature ranged between 100° and 103° F., after which it became normal and finally subnormal, reaching 96.6° just before death; the pulse averaged 120, the respirations 24. The bowel movements were loose and yellow and ranged between one and four per day.

Liquid diet, strychnin, atropin, betanaphthol and cod-liver oil were given internally; ice and electricity were used locally; and lead-water and laudanum were applied to the hands and feet. A conference with the other men on duty resulted in a rejection of surgical interference.

On the eighth day the girth showed a reduction of 11 cm. The body was emaciated, face pinched and eyes sunken; the spare frame and prominent belly reminding one of a patient with a large ovarian cyst. The ulcers were not healing and several pustules on the face and hands were opened. The emaciation increased, the stools became more copious, the patient weaker until the seventeenth day when he died of exhaustion.

At the *post-mortem* examination, thirty-six hours after death, the topography of the thoracic organs corresponded with that fixed by percussion before death; they were apparently normal. The spleen, liver, small intestines and urinary apparatus presented nothing unusual. The colon was so large that instead of framing the small intestines it almost completely hid them from view, and after being slit longitudinally and spread out on the table measured transversely 17 cm., *i.e.*, the circumference was 17 cm. when not distended. Ten cm. above the ileo-cecal valve was a hard, fibrous constriction, 6 cm. in circumference; thirty cm. above the anus a similar constriction 5 cm. in circumference and between the constrictions numerous large, transverse, superficial ulcerations measuring from 3 to 5 cm. in their longest diameter. The colic walls were hard, thickened and corrugated, resembling tripe. The rectum measured 16 cm. in circumference.

The notes of this case indicate that we were dealing with a case of hypertrophic dilatation of the colon and rectum which had existed from birth and which gave no clue to its origin—a case of idiopathic dilatation of the colon.

Colic dilatation, whether congenital or acquired, may be due to an obvious obstruction or may be idiopathic. Idiopathic simply expresses our ignorance for there must be a cause; it may be a kinking or partial twisting of the sigmoid flexure, due to a long sigmoid or meso-sigmoid, or some similar imperfect, but nevertheless definite, mechanical obstruction which has thus far eluded the curious fingers of the pathologist. One might predict for idiopathic dilatation of the colon a fate similar

to that of idiopathic peritonitis, idiopathic fever and other idiopathies; the more it is investigated the more rare it will become.

Congenital and acquired mechanical obstructions are relieved by surgery, one of the most brilliant being the celebrated case of Mr. Treves (*Lancet*, January 29, 1898), in which the descending colon sigmoid and rectum were excised, in a child of five years, for congenital dilatation of the colon due to an almost impervious rectum. Richardson (*Trans. Amer. Surg. Assoc.*, 1897, xv., 585), has successfully removed the sigmoid for chronic obstruction due to a half-twist. Elliott (*Annals of Surgery*, July, 1899), thrice operated, successfully, on a man whose sigmoid was estimated to be three feet long and seven inches in diameter. Twice the volvulus was untwisted, the third time the sigmoid was sutured to the anterior parietal peritoneum to preclude a recurrence. These cases are not idiopathic but they are very close to the so-called idiopathic cases.

Idiopathic dilatations of the colon have been, with few exceptions, treated medically. Harrigan (*Amer. Jour. Med. Sciences*, August, 1899), resected the sigmoid flexure for dilatation giving rise to repeated attacks of obstruction, peritonitis and death ensuing one week later. The patient was forty years of age and had had a distended abdomen since childhood. Halstead (*Archives of Pediatrics*, 1893, xiii.), made an artificial anus in a case of congenital idiopathic dilatation of the colon; the patient is reported to be well, three years later. Griffith (*Amer. Jour. Med. Sciences*, September, 1899), had an artificial anus made in a similar case; the patient was in a desperate condition at the time of operation and died shortly afterward. Richardson (*Id.*, August, 1899), excised, with success, a dilated sigmoid in a woman thirty-seven years of age, for idiopathic dilatation coming on eighteen months before operation. The descending colon and rectum were enlarged to a lesser extent.

And two exploratory operations have been performed.

Idiopathic dilatation of the colon is not always congenital; it is not always infantile, but may occur in any decade of life; and whenever it appears it is progressive and malignant. Medical treatment affords but little help, while at least two cases have been treated surgically with gratifying results. One is confronted with a large fecal reservoir whose walls are frequently lined with ulcers and from which septic material is constantly being absorbed.

The operative procedure best suited for this condition could be definitely outlined at the time of operation only, the objective point being either drainage or removal of the large bowel. If the patient be *in extremis* an artificial anus would be indicated, leaving more radical measures to a later period. If undertaken with the patient in good condition, a resection of the sigmoid might be advisable, as great distension of this portion of the large bowel alone has been observed in several cases; or the ileum might be implanted into the rectum and the lower end of the colon sutured in the abdominal wound so as to drain it, thus sidetracking the entire large bowel and leaving it to atrophy. Few will have the temerity to excise the entire colon or even to emulate Mr. Treves. Enteroraphy or suturing the curling sigmoid to the anterior parietal peritoneum would prevent any kinking of this portion of the bowel.

It seems to us that all cases of chronic constipation with a persistently swollen abdomen should be scrutinized by the surgeon. Often in the congenital form the *post-mortem* examination only will demonstrate whether the dilatation be idiopathic or due to a narrowing of the lower bowel or other definite cause. Often in the acquired class it will be impossible to surely differentiate an idiopathic case from one due to partial volvulus or other equal remediable condition. And although the surgeon finds no obvious cause, he may yet adopt a course shaped to save life, mitigate suffering, or cure the patient.

Typhoid Fever in a Child of Eighteen Months.—Two days before the child entered the hospital its mother died of typhoid, and a sister was also ill with the same disease. The child had been ill for eight days and came with a temperature of 101.6°, pulse 120, lips dry, spleen enlarged and characteristic rose spots on chest and abdomen. In bed she rested quietly, paid attention to surrounding objects and noticed people about the ward. On October 24th, two days after admission, a positive diazo reaction was obtained, and Widal's test was obtained on October 28th. On November 10th the tongue was clear and moist, the child was quiet and slept well, and there had been no fever for the past week. At no time were the symptoms severe and the course of the disease was uneventful. No relapse followed and the child rapidly recovered.—*Yale Med. Journ.* Vol. vi., No. 2.

AN ANALYTICAL STUDY OF CERTAIN OF THE CLINICAL PHENOMENA OBSERVED IN 112 CONSECUTIVE CASES OF CHOREA.

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formerly Professor of Pathology, St. Mungo's College, Glasgow.

In this paper I propose to give the results of an analysis of the chief clinical phenomena noted in connection with 112 consecutive cases of chorea minor (St. Vitus' dance—Sydenham's chorea), of which I have preserved more or less extensive notes in my case-books. It is possible that this analysis may not throw very much fresh light upon the disease; but the larger the number of carefully recorded cases subjected to statistical investigation, the more accurate is our knowledge of the phenomena of the disease likely to become, and this has been the chief reason which has induced me to prepare this analytical review of my notes. The cases were seen in the dispensary of the Glasgow Royal Infirmary, in the out-patient room of the Royal Hospital for Sick Children, Glasgow, and latterly in my wards at the Royal Infirmary.* It is perhaps not without importance in an inquiry of this kind that all the cases dealt with have been personally examined and recorded by myself. The results of the inquiry are likely to be more uniform, and the defects and omissions of the observer more easily detected and allowed for than if the cases analyzed had been recorded by a multiplicity of observers, each with his own peculiar methods of note-taking and examination. I desire also at this point to make it clear that I do not intend to discuss the phenomena of the so-called choreiform affections—tic, habit-spasms, post-hemiplegic chorea, Huntington's chorea—all of which I believe to be totally different, both in clinical course and pathological nature, from the chorea minor of childhood. To discuss these affections along with Sydenham's chorea is, in my opinion, likely to give rise to confusion of thought and to disappointment in treatment.

* In the laborious work of examining the records and reducing them to statistical form I have gratefully to acknowledge the valuable help I have received from my colleague at the Sick Children's Hospital, Dr. Alice McLaren, and from my house physician at the Infirmary, Dr. Hugh McLaren.

In presenting the results of my analytical study, I shall arrange the 112 cases in two groups:

- A. 87 Cases observed in the Out-patient Room.
 B. 25 " " " " Wards.

Obviously the information at my command was greater in reference to the cases admitted to the wards than it could be in connection with the out-patients. The phenomena of the disease which have been investigated in this inquiry are the following: (1) sex, (2) age, (3) number of attacks, (4) duration of attacks, (5) cause of attacks, (6) family history, (7) association with rheumatism and other morbid states, (8) condition of the heart, (9) condition of the urine, (10) distribution and severity of the movements, (11) time under observation.

A. 87 OUT-PATIENT CASES.

(1) *Sex.*

Of these cases 23 were males and 64 females, *i.e.*, about 26.5 per cent. were males and 75.5 per cent. were females. This proportion of females to males is somewhat greater than that given by Osler, who found that in 554 cases about 70 per cent. were females. He remarks that his proportion of females is lower than that given by many authors.

(2) *Age.*

In 86 out of the 87 cases the age of the patients was noted, and the results may be best seen by arranging the numbers in periods of five years.

5 years and under,	-	-	-	-	-	6 cases.
6 to 10 years,	-	-	-	-	-	43 "
11 to 15 years,	-	-	-	-	-	25 "
Over 15 years,	-	-	-	-	-	12 "
Total,	-	-	-	-	-	86 cases.

It will thus be seen that the greatest number of cases occurred between the ages of five and fifteen. Under the age of five the disease is rare; over the age of fifteen it is also rare, even rarer than the table shows, because 4 of the 12 cases were not seen during the first attack of the disease. Two of the patients presented themselves during the second and 2 during the third attack, and in all of them the first attack had occurred some years before. Of the 12 cases over fifteen years of age 5 were

adults over twenty, *viz.*: 2 aged twenty; 1 aged twenty-two; 1 aged twenty-six; and 1 aged thirty-seven. Perhaps 2 of these cases, though simulating very closely the clinical features of chorea minor, may be placed in a different category. These figures conclusively confirm the well-known rule that chorea minor is essentially a disease of childhood, rare during infancy, and for a first attack not common after the age of fifteen.

(3) *Number of Attacks.*

Information as to this point was preserved in the whole series of 87 cases, and may be tabulated as follows:

One attack,	-	-	-	-	-	-	60 cases.
Two attacks,	-	-	-	-	-	-	16 "
Three "	-	-	-	-	-	-	4 "
Four "	-	-	-	-	-	-	2 "
Five "	-	-	-	-	-	-	4 "
Six "	-	-	-	-	-	-	1 case.
Total,	-	-	-	-	-	-	87 cases.

In 31 per cent. of the cases more than one attack of the disease was recorded, a percentage which shows strikingly enough the great tendency chorea has to recur, and the figures show that three, four and five attacks are not at all uncommon. This percentage of recurrences is less than that given by Osler, who had 41 per cent. of recurrences in 410 cases analyzed with special reference to this point.

(4) *Duration of Attacks.*

It is more difficult to show the results of our inquiry into this point in a tabular form. In the first place, it is to be noted that the table only deals with the duration of the attack for which the patient was under treatment, and, secondly, that in 18 out of 87 cases no information has been preserved in the records. In 36 of the cases I obtained definite information, and in 33 partial or indefinite information, as shown in the table.

A. No information,	-	-	-	-	-	-	18 cases.
B. Definite information:							
One month's duration and under,	-	-	-	-	-	-	7 cases.
Two months' " "	-	-	-	-	-	-	11 "
Three " "	-	-	-	-	-	-	13 "
Six " "	-	-	-	-	-	-	4 "
Twelve " "	-	-	-	-	-	-	1 case.

} 36 cases.

C. Indefinite or partial information:

One month's duration and under,	-	-	16 cases.	} 33 cases.
Two months' " "	-	-	5 "	
Three " " "	-	-	2 "	
Six " " "	-	-	3 "	
Twelve " " "	-	-	1 case.	
Twenty-four months' duration and under,	-	-	2 cases.	
Congenital, -	-	-	1 case.	}
Very chronic, -	-	-	3 cases.	
Total, -				87 cases.

More than half of the cases lasted under two months, and 15 out of the 69 under three months. No doubt it would have been interesting could the effect of treatment on the duration of the disease have been estimated and tabulated, but this was impossible. The figures, however, show that there is a spontaneous tendency towards the disappearance of the movements.

The following table shows the duration of the individual attacks in 27 cases in which there was more than one attack of the disease:

DURATION OF THE ATTACKS IN 27 CASES IN WHICH THERE WERE MORE THAN ONE.

1ST ATTACK.	2D ATTACK.	3D ATTACK.	4TH ATTACK.	5TH ATTACK.	6TH ATTACK.	NO. OF ATTACKS.
4½ months.	Unknown.	..	..	..	..	2
5 months.	Unknown.	..	..	..	..	2
3 years.	Unknown.	..	..	..	..	2
2 months.	Unknown.	..	..	..	..	2
Some months. }	3 months.	..	..	..	..	2
3 months.	Unknown.	..	..	..	..	2
2 months.	3 months.	..	..	..	..	2
Unknown.	2¼ months.	..	..	..	..	2
3½ months.	3 months.	..	..	..	..	2
2 months.	1½ month.	..	..	..	..	2
1¾ months.	Unknown.	..	..	..	..	2
Slight.	Unknown.	..	..	..	..	2
1 month.	6 months.	..	..	..	..	2
1¾ month.	Unknown.	..	..	..	..	2
3¼ month.	Unknown.	..	..	..	..	2
Unknown.	3 weeks.	..	..	..	..	2
Unknown.	2 months.	1 month.	..	..	..	3
Unknown.	Unknown.	1¼ month.	..	..	..	3
1¼ month.	1¼ month.	3 weeks.	..	..	..	3
3 months.	2 months.	3 months.	..	..	..	3
Unknown.	Unknown.	Unknown.	5 months.	..	..	4
Unknown.	Unknown.	Unknown.	18 months.	..	..	4
4 months.	{ Some months. }	3 months.	Unknown.	Unknown.	..	5
3 months.	1¾ month.	Unknown.	2½ months.	3 months.	..	5
Unknown.	Unknown.	Unknown.	3 months.	Unknown.	..	5
Unknown.	1¼ month.	Unknown.	Unknown.	1¼ month.	..	5
Unknown.	Unknown.	3½ months.	1 year.	1½ month.	1 month.	6

(5) *The Cause of Attack.*

The association with acute rheumatism and the doctrine that chorea is but one of the many possible manifestations of the rheumatic diathesis in childhood will be referred to in another part of this paper. Apart from this, however, I have endeavored from my notes to gain information as to what might be called the emotional factors in the causation of St. Vitus' dance. In only 30 out of the 87 cases have definite statements as to the causation of the attacks been recorded. In at least 26 of these 30 cases the exciting cause may be classed under the heading "Emotional." The 4 remaining cases were attributed by the parents to the effects of accidental falls, 3 of the falls being on the head. The following table indicates the different kinds of emotional disturbance to which the chorea was attributed:

Fright,	-	-	-	-	-	-	-	14 cases.
Over-work,	-	-	-	-	-	-	-	2 "
Mental excitement or distress,	-	-	-	-	-	-	-	3 "
Grief,	-	-	-	-	-	-	-	1 case.
Worry over school examinations,	-	-	-	-	-	-	-	3 cases.
Punishment at school,	-	-	-	-	-	-	-	2 "
Scolding,	-	-	-	-	-	-	-	1 case.
Total,	-	-	-	-	-	-	-	26 cases.

(6) *Family History.*

In the 87 cases there were 31 in which no definite information as to the family history was recorded, leaving 56 in which the family history had been inquired into. In these 56 cases information as to the presence of rheumatism, chorea, or nervous disease in other members of the family was specially sought for. In 30 cases the family history was negative as regards any of these diseases. In 26 cases positive information was obtained, the details of which may be stated as follows: In 18 cases rheumatism had attacked other members of the family; in 11 chorea had occurred; and in 5 some other form of nervous affection. In 3 of the cases investigated, rheumatism, chorea, and nervous disease had occurred in other members of the same family, and in 2 rheumatism and chorea.

The result of this part of our inquiry, then, is to demonstrate that in almost 50 per cent. of the cases in which the point was specially investigated, a family tendency to rheumatism, chorea, or some other form of nervous disease could be very distinctly made out.

(7) *Association with Rheumatism and other Morbid States.*

The results of the inquiry under this heading are seen at a glance in the following table:

No definite information,	-	-	-	-	6 cases.
No history of antecedent rheumatism,	-	-	-	-	46 "
History of antecedent rheumatism,	-	-	-	-	26 "
History of various antecedent diseases,	-	-	-	-	9 "
Total,	-	-	-	-	87 cases.

It is thus seen that there was no history of antecedent rheumatism in 55 out of the 81 cases in which the matter was inquired into. I believe, however, that the relationship between rheumatism and chorea is much closer than these figures would seem to indicate. It has frequently happened to me to observe a well-marked attack of articular rheumatism follow, often after a considerable interval, an attack of chorea. It seems to me, therefore, that the teaching of Dr. Cheadle, that chorea is but one of several of the manifestations of the rheumatic state in childhood, is strictly borne out by clinical facts. It is because of this intimate association with the rheumatic diathesis that we are justified in regarding Sydenham's chorea as a disease *sui generis*, as a disease quite different both in its clinical manifestations and its pathogenesis from Huntington's hereditary chorea and the various forms of choreiform affections. The adoption of the name "infectious chorea" (*infectiöse chorea*) to signify chorea minor by Professor Wollenberg of Hamburg may be mentioned in support of the opinion of the essential pathology of St. Vitus' dance which I am now advocating.

Of the other morbid states noted to have been associated with the chorea, in 9 of the cases the following are the particulars:

Bronchitis,	-	-	-	-	-	2 cases
Diseased bone,	-	-	-	-	-	2 "
Convulsions,	-	-	-	-	-	1 case
Adenitis,	-	-	-	-	-	1 "
Idiocy,	-	-	-	-	-	1 "
Headaches,	-	-	-	-	-	1 "
Psoriasis,	-	-	-	-	-	1 "
Total,	-	-	-	-	-	9 cases.

(8) *Condition of the Heart.*

In 50 of the 87 cases the heart was stated not to have been affected; and in 5 no definite information as to the condition of that organ was recorded. In 32 cases there was evidence of an

abnormal condition of the heart, and the following table shows the state of the cardiac sounds in these:

Accentuated second sound at base,	-	-	-	5 cases.
Prolonged first sound at apex,	-	-	-	5 "
Systolic murmur at apex,	-	-	-	16 "
Presystolic and systolic murmurs at apex,	-	-	-	3 "
Systolic and diastolic murmurs at apex,	-	-	-	2 "
Irregularity of cardiac sounds,	-	-	-	1 case.
Total	-	-	-	32 cases.

These figures show that in 39 per cent. of the cases examined the cardiac condition was abnormal, and if we exclude those in which the second sound was accentuated we get about 31 per cent. in which it may be admitted there was definite evidence of valvular disease.

(9) *Condition of the Urine.*

An analysis of the urine was made at least once in 45 out of the 87 cases at present under review, and gave the following results:

Albumin was detected in	-	-	-	-	4 cases.
Albumin was not detected in	-	-	-	-	41 "
Total,	-	-	-	-	45 cases.

A note of the specific gravity was recorded in 40 cases.

The average sp. gr. was	-	-	-	-	1018.5.
The maximum was	-	-	-	-	1033.
The minimum was	-	-	-	-	1004.

The reaction of the urine was noted 33 times:

Reaction acid,	-	-	-	-	-	26 cases.
" alkaline,	-	-	-	-	-	3 "
" neutral,	-	-	-	-	-	4 "
Total,	-	-	-	-	-	33 cases.

The result of this part of the inquiry is to show that in chorea there is on the whole little tendency to derangement of the renal function. One might expect that in a disease characterized by long-continued and often excessive muscular action the specific gravity of the urine would be increased from an excess of waste products being present, but I have not found this to be the case.

(10) *Distribution and Severity of the Movements.*

It is somewhat difficult to show in a satisfactory manner the results of the examination of the records with regard to this

point. As to the distribution of the choreic movements, however, some idea may be obtained by classing them under the headings of general, right-sided, left-sided. In two cases there was no information.

General,	-	-	-	-	-	-	39 cases.
Right-sided (chiefly),	-	-	-	-	-	-	25 "
Left-sided (chiefly),	-	-	-	-	-	-	21 "
Total,	-	-	-	-	-	-	85 cases.

The only way in which an indication, and that only approximately, of the severity of the choreic movements can be expressed is by classing the cases under the terms severe, moderately severe and slight. In 5 cases there was no record of this point.

Movements severe,	-	-	-	-	-	-	23 cases.
Movements moderately severe,	-	-	-	-	-	-	35 "
Movements slight,	-	-	-	-	-	-	24 "
Total,	-	-	-	-	-	-	82 cases.

The table shows that cases of moderate severity predominate, and this is probably the usual rule. Of course, as has been said, the statement under this heading can only be approximate, but on the whole the number of cases classed as severe may be taken as unusually high.

(11) *Time under Observation.*

In the work of tabulating the cases an attempt was made to show the time each case had been under observation, but in the end it was found that only the most general statements could be made under this heading. Indeed, all that can be done is to show how many made more than one visit to the dispensary. 31 cases were seen only once; 56 cases made several visits, very many of them having been under treatment for a month or more.

B. 25 CASES OBSERVED IN THE WARDS.

(1) *Sex.*

Of the cases observed in my wards at the Glasgow Royal Infirmary 5 were males and 20 were females, *i. e.*, 1 male to every 4 females, as compared with about 1 to 3 in the cases observed in the out-patient room. Here again, then, the rule that chorea is much more frequently met with in girls than in boys is abundantly confirmed.

(2) *Age.*

Arranging the ward cases, like the out-patient ones, in five-yearly periods, we get the following table:

5 years and under,	-	-	-	-	-	0 cases.
6 to 10 years,	-	-	-	-	-	9 "
11 to 15 years,	-	-	-	-	-	11 "
Over 15 years,	-	-	-	-	-	5 "
						<hr/>
Total,	-	-	-	-	-	25 cases.

Here, as in the former table, it is seen that by far the greatest number of cases occur between the ages of 5 and 15. In the ward cases the proportion over 15 years of age is slightly higher than in the dispensary cases, which, had the proportion been equal, should have given 17 instead of 12 above this age. In the wards there were no cases seen under the age of 5, as against 6 seen under this age in the series of 86 dispensary cases. Both sets of figures then go to prove that under the age of 5 and over that of 15 for a first attack chorea is a rare disease. Of the 25 cases met with in the wards only one of the 5 patients over the age of 15 was suffering from the first attack of the disease; 3 were in the second, and 1 in the third attack, the first attack in all of the cases have occurred a number of years before. The girl suffering from her first attack was between 16 and 17 years of age, and was pregnant.

(3) *Number of Attacks.*

The annexed table shows the number of attacks in the 25 ward cases:

One attack,	-	-	-	-	-	11 cases.
Two attacks,	-	-	-	-	-	9 "
Three "	-	-	-	-	-	3 "
Four "	-	-	-	-	-	2 "
						<hr/>
Total,	-	-	-	-	-	25 cases.

In 56 per cent. of the present series, as against 31 per cent. of the former, more than one attack of the disease had occurred. We saw that Osler had 41 per cent. of recurrences in 410 cases analyzed with reference to this point. In my ward cases the percentage is distinctly greater, but if we take the average of dispensary and ward cases we get 43 per cent. of recurrences, a very close agreement with Osler's results.

(4) *Duration of Attacks.*

In 24 of the 25 cases definite information on this point has been recorded, and is shown in the table:

One month's duration and under,	-	-	-	1 case.
Two months'	"	"	-	5 cases.
Three "	"	"	-	8 "
Six "	"	"	-	7 "
Twelve "	"	"	-	2 "
Three years',	"	"	-	1 case.

An examination of this table shows that a considerably larger proportion of the ward cases lasted more than two months, as compared with those seen in the dispensary, and this probably means that the cases admitted to hospital were on the whole more severe. Here also, though perhaps not so strikingly as in the dispensary cases, the spontaneous tendency to cure is demonstrated, as considerably more than half of the cases lasted three months and under.

The following table shows the duration of the individual attacks in 14 cases in which there were more than one:

DURATION OF THE ATTACKS OF 14 CASES IN WHICH THERE WERE MORE THAN ONE.

1ST ATTACK.	2D ATTACK.	3D ATTACK.	4TH ATTACK. *	NO. OF ATTACKS.
Unknown.	5 months.	..	..	2
4 or 5 months.	5 months.	..	..	2
3 months.	3 months.	..	..	2
Unknown.	3 years.	..	..	2
12 weeks.	13 weeks.	..	..	2
8 months.	12 months.	..	..	2
6 months.	5 months.	..	..	2
Some months.	6 weeks.	..	..	2
7 weeks.	8 weeks.	..	..	2
3 months.	3 months.	3 months.	..	3
10 weeks.	8 weeks.	8 weeks.	..	3
4 or 5 months.	10 weeks.	1 month.	..	3
4 months.	A short time.	A short time.	9 weeks.	4
3 months.	6 weeks.	6 weeks.	7 months.	4

(5) *The Cause of Attacks.*

The following table shows the results of the inquiry into the cause of the attacks of chorea in the 25 ward cases:

No cause could be assigned in	-	-	-	16 cases.
Fright	"	"	"	7 "
Punishment at school assigned in	-	-	-	1 case.
Pregnancy assigned in	-	-	-	1 "
Total,	-	-	-	25 cases.

The figures in both of my series of cases go then to show that emotional causes, such as fright, are perhaps not so frequent as one would expect in chorea.

(6) *Family History.*

In 23 out of the 25 hospital cases notes of the family history with special reference to the presence of rheumatism, chorea, or nervous disease in other members of the family have been preserved.

In 11 of the cases the family history was quite negative as regards this point.

The following table shows the result as regards the remaining cases:

Rheumatism in family,	-	-	-	-	11 cases.
Chorea in family,	-	-	-	-	1 case.
Nervous disease in family,	-	-	-	-	0 "
Total,	-	-	-	-	12 cases.

The proportion of cases in which a family tendency to rheumatism or chorea was present is slightly greater in this than in the former series (dispensary cases), but the difference is not great. In the ward cases the mother had suffered from rheumatism in 6, the father in 4, a brother in 1 and a sister in 1. In some of the cases, however, rheumatism had attacked several members of the same family. A mother and some of her children had been attacked in 2 cases; the father and mother in 2 cases; a father and son in 1 case. The mother was the only member of the family attacked in 3 cases, and the father alone in 2 cases. We see then, as in the previous analysis, that in about 50 per cent. of the cases a distinct tendency to rheumatism in the family can be made out in chorea. This, I think, lends strong support to the opinion of Cheadle that chorea is essentially a rheumatic manifestation.

(7) *Association with Rheumatism and other Morbid States.*

Definite information on this point was obtained in the whole series of cases admitted into the wards, and is tabulated as follows:

No history of antecedent rheumatism,	-	-	8 cases.
History of antecedent rheumatism,	-	-	11 "
History of subcutaneous fibrous nodules,	-	-	1 case.
History of other morbid states,	-	-	5 cases.
Total,	-	-	25 cases.

In the present series of cases a distinctly larger proportion (almost 50 per cent.) had a definite rheumatic history. The history of fibrous nodules may be regarded as evidence of the presence of rheumatism. My experience with regard to the occurrence of nodules in rheumatism or chorea in childhood is that the phenomenon is decidedly rare in Glasgow, and Osler tells us that the condition is also rare in the United States. I have been on the outlook for it for many years, but the case here included in the table is the only one in which I have met with it.

The following table shows the other morbid states which were associated with the chorea in the present series of cases:

Bronchitis,	-	-	-	-	-	-	1 case.
Albuminuria,	-	-	-	-	-	-	1 "
Scarlet fever,	-	-	-	-	-	-	3 cases.
Total,							5 cases.

It is well known that rheumatism frequently complicates scarlet fever, and therefore it is not surprising that we should find a history of its association with chorea in a certain number of cases.

(8) *Condition of the Heart.*

In my 25 hospital cases the heart was found to be definitely affected in 15, and not affected in 10 cases, again a distinctly larger proportion of cardiac affections than was met with in the series of dispensary cases. The details of the cardiac affection may be stated as follows:

Systolic murmur at apex,	-	-	-	-	10 cases.
Systolic murmur at apex and pulmonic area,	-	-	-	-	1 case.
Diastolic murmur at pulmonic area,	-	-	-	-	1 "
Irregularity of cardiac sounds,	-	-	-	-	2 cases.
Pericarditis,	-	-	-	-	1 case.
Total	-	-	-	-	15 cases.

In 5 of the cases distinct increase of the cardiac area to the left was also noted, and in 7 no increase of the cardiac area could be made out.

In the hospital cases we have a proportion of exactly 60 per cent. in which there was unmistakable valvular affection of the heart associated with the chorea, as compared with 31 per cent. of the dispensary cases. This may be taken as evidence of the greater severity of the affection in patients admitted into the

wards. If we take the average of both series of cases we get a percentage of 45 in which cardiac disease was associated with the chorea, a sufficiently large proportion to establish a very close clinical and etiological relationship between the two conditions.

(9) *Condition of the Urine.*

The urine was found to be normal in 20 cases, and abnormal in 1. As regards 4 of the cases there was no information.

In the series of ward cases albumin was only discovered in 1, that of the young girl who was found to be pregnant. In her case a few granular tube-casts were also detected. On her second admission the chorea having recurred with the advent of her second pregnancy, there was no albumin in the urine, which was normal in all respects.

In 20 of the ward cases a note of the specific gravity of the urine was preserved. In 11 of these cases only one observation of the specific gravity of the urine was recorded, but in 9 of them a series of consecutive daily observations, varying from 20 to 54 days, was made.

In the 11 cases where the specific gravity was noted on only 1 occasion the average density was 1022, the maximum being 1032, the minimum 1015.

Of the 9 cases in which a series of daily observations of the specific gravity was made, the following are the particulars:

1. Average of 20 daily observations,	-	-	-	1016.
Maximum, 1023.				
Minimum, 1010.				
2. Average of 23 daily observations,	-	-	-	1013.
Maximum, 1018.				
Minimum, 1010.				
3. Average of 23 daily observations,	-	-	-	1017.
Maximum, 1024.				
Minimum, 1011.				
4. Average of 28 daily observations,	-	-	-	1022.
Maximum, 1039.				
Minimum, 1015.				
5. Average of 25 daily observations,	-	-	-	1022.
Maximum, 1030.				
Minimum, 1014.				
6. Average of 33 daily observations,	-	-	-	1021.
Average of first 16 observations, 1020.				
Average of second 17 observations, 1017.				
7. Average of 42 daily observations,	-	-	-	1014.
Average of first 21 observations, 1015.				
Average of second 21 observations, 1012.				
2nd admission, 54 observations, 1015.				
8. Average of 28 daily observations,	-	-	-	1013.
9. Average of 25 daily observations,	-	-	-	1025.

The average specific gravity of the urine in this series of 9 cases in which extended daily observations were made is 1016, a result which clearly shows that the specific gravity of the urine in chorea is on the whole rather below than above the normal point.

The reaction of the urine was noted in 20 out of the 25 ward cases, and in all of them it was found to be acid.

Here again, then, as in the dispensary cases, it is seen that there is no special derangement of the renal function associated with chorea.

(10) *Distribution and Severity of the Movements.*

The following table shows the distribution of the choreic movements:

General,	-	-	-	-	-	16 cases.
Right-sided (chiefly),	..	-	-	-	-	5 "
Left-sided (chiefly),	-	-	-	-	-	4 "
						—
Total,	-	-	-	-	-	25 cases.

As regards the severity of the choreic movements the hospital cases were classified as slight and severe.

Movements slight,	-	-	-	-	-	10 cases.
Movements severe,	-	-	-	-	-	15 "
						—
Total,	-	-	-	-	-	25 cases.

Here, again, the table shows that, as compared with the dispensary series, the cases admitted into the wards are altogether of a more severe type.

(11) *Time under observation.*

In cases admitted to the wards it is much easier to obtain accurate information as to the length of time the patients were under observation, and this is shown in the following table:

One month and under,	-	-	-	-	-	9 cases.
Two months	"	-	-	-	-	11 "
Three months	"	-	-	-	-	3 "
Four months	"	-	-	-	-	2 "
						—
Total,	-	-	-	-	-	25 cases.

Of cases that were admitted to the wards on more than one occasion, the following table shows the time the patients were under observation:

Two months and under,	-	-	-	-	3 cases.
Three " "	-	-	-	-	1 case.
Total, -					4 cases.

The first of these tables may be compared with the first given under Section 4 of the present series, when it will be seen that on the whole the treatment in hospital tends to shorten the duration of the attacks, although no absolute comparison of the two tables can be drawn.

It is not my intention to comment further upon the facts which have been tabulated in the foregoing pages. My object has simply been to show in a statistical form the frequency with which the well-recognized clinical phenomena of the disease occur in a fairly large series of consecutive cases. On the whole it may be admitted that the tabulated results of my personal experience confirm the teaching of other observers with regard to the clinical history of chorea.

It is generally taught that psychical disturbance, more or less severe, is a frequent accompaniment of chorea. My records upon this point contain no information that could have been made use of in the present inquiry. Certainly in my dispensary cases mental symptoms never prominently obtruded themselves; and even in some of my most severe cases observed in the wards the mind remained perfectly clear throughout. I do not wish it to be understood that in any sense I am asserting that mental symptoms do not occur in chorea, because in all probability, had the point been more definitely inquired into, a considerable number of cases presenting psychical phenomena might have been discovered. A case of *chorea insaniens* I have never seen; and my experience of chorea leads me to agree entirely with the latter part of the following statement, quoted from Osler: "Psychical disturbance is rarely absent in chorea; fortunately in the majority of cases it is slight in degree."

When this paper was commenced I had intended to include the subject of treatment, but this must be left for a future contribution.

TWO CASES OF IDIOPATHIC HEMATURIA.

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The diagnosis in the first case, although not established with absolute certainty, has been made by careful exclusion of all other diseases and causes.

CASE I.—Male, aged eight years, was brought to the clinic for treatment by his mother, who gave the following history: The parents are both living and are in good health; there are two other children in the family, both of them being perfectly healthy. There is no tuberculosis in any of the family. The only diseases from which this patient has suffered are chronic summer diarrhea, when two years of age, and measles when six years old. He has not had any malarial symptoms. About three years ago, the boy commenced to pass blood in his urine, from no apparent cause, and this symptom has continued at greater or lesser intervals. During micturition, there is no pain, no straining, and I have been unable to find a stone in the bladder. His mother states that the appearance of the blood in the urine is paroxysmal and that it is most apt to occur after some mental excitement; as, for instance, after a punishment or severe scolding. There is never any bleeding from any other portion of the body.

At his first visit to the dispensary, he passed some urine which was perfectly normal in color and in reaction, and contained no albumin and no sugar. The microscopic examination also remained negative. However, at a subsequent visit, he passed a specimen of urine of a brownish-red color and the blood appeared to be intimately admixed with the urine. The specific gravity was 1018; it contained some albumin and, on microscopic examination, blood disks and a few blood casts were found.

The patient is a rather delicate child, somewhat undersized and apparently below the average weight. He is anemic; the mucous membrane of the mouth is pale but the gums are not spongy and have no tendency to bleed. The heart, blood-vessels and lungs are normal. The liver and spleen are apparently normal in size and it is impossible to detect any tumor in the region of the kidneys. The blood was not examined.

There are cases in which hematuria occurs for a long time without discoverable cause, particularly in young persons. This form of hematuria has been described by Senator and also by Sir William Gull, who spoke of such cases as "Renal Epistaxis."

After repeated examinations of this patient, I am led to believe that this is a case of hematuria, the origin of which is unknown and to which the term *idiopathic hematuria* has been applied.

Next to the change in the urine, the most striking feature is the absence of all other symptoms. The appearance of the blood is paroxysmal. The patient is not very weak, is not sick and complains of nothing.

The prognosis in this case is somewhat doubtful. It is not necessarily unfavorable. Some of these patients have blood in their urine for a long time without any visible deleterious results but I fear that with the lapse of time and the continuance of the symptom, positive weakness will result.

CASE II.—Male, aged five years; always healthy; has had hematuria for about ten weeks. Parents can give no cause. No history of any infectious disease, no injury, no manifestations of scurvy, no digestive disturbance, no malaria. Hematuria is absolutely the only symptom. The physical examination is entirely negative. Sometimes the urine is perfectly clear, without blood, at other times it contains a considerable quantity. A microscopic examination of one specimen revealed blood corpuscles and some squamous epithelium, also mucus, but no casts could be detected. The specific gravity was 1025. In this case, the blood count was made by Dr. A. L. Lewin with the following result:

The bacteriologic examination was negative.

White blood corpuscles 5,250 per c.mm.

Red " " 2,493,800 "

A proportion of 1 to 475.

The amount of hemoglobin was somewhat diminished.

In the treatment of hematuria, rest in bed is an essential and important measure in the management of the condition. The mineral and vegetable astringents known to be efficient in the treatment of hemorrhagic conditions elsewhere are said to be without effect in these cases, but they may be tried.

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F. FORCHHEIMER, M.D.,	Cincinnati	G. A. WRIGHT, M.D.,	"
B. K. RACHFORD, M.D.,	"	A. D. BLACKADER, M.D.,	Montreal
C. G. JENNINGS, M.D.,	Detroit	JOAQUIN L. DUEÑAS, M.D.,	Havana

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INTUSSUSCEPTION.

The subject of intussusception does not present anything that is especially new, but it leads to a consideration of the duty a physician owes to his patient in the treatment of a disease that is medical only if it yields to non-operative interference. It is regarded as conservatism not to operate in cases of intussusception because cases are reported where relief is given by injections of water and carbonic acid gas. There can be no doubt but that such means are justifiable during the first few hours of an intussusception just as it is right for taxis to be tried for a hernia in the inguinal canal. Unfortunately, however, the rules that guide to an operation for strangulated hernia seem to point away from intussusception, and conservative means are tried where radical ones are needed. Not to recognize the impossibility of reducing some hernias by taxis would be regarded as almost criminal, but a leaden weighted conservatism allows a man to persist in injections for an intussusception long after the gut is gangrenous.

Intussusception is a mechanical condition that is to be treated by mechanical means. It is an invagination of one portion of intestine within another. This we all know, but that there may be a septic or toxic state of the system is not always borne in mind. For an invagination in the large intestine an injection of water from a height of three feet may be tried, but if the gut does not go back in place after one or two such attempts an operation should be undertaken without delay. In an intussusception in the small intestine there is but one means of treatment, and that is a laparotomy for the purpose of relieving the gut.

Conservative surgery recognizes the value of the whole body even if one part has to be destroyed, but there is no conservatism in the treatment of a case by a method which deprives a child of its life during an attempt to effect a relief to one part at the risk of the integrity of all its structures. It is not possible to tell whether the intestine is damaged unless the abdomen is opened, and if this is not done how can a resection be performed where the gut is gangrenous?

Early operations in intussusception give successful results in 70 per cent. of the cases operated on during the first twenty-four hours, but each day's delay lessens the percentage of recoveries. A physician who is truly conservative to his patient's life will appreciate the danger to his patient's life and will be ready to have an operation done without waiting to try experiments, the success of which can only be determined on the *post-mortem* table.

The Archives of Pediatrics is so well-known that it may not seem necessary to call the attention of subscribers and contributors to the full title. The name is one suited to the journal and to the specialty it represents. To avoid confusion with another journal that has taken part of the name, the editor of the ARCHIVES OF PEDIATRICS requests contributors to use the full heading on all their communications.

Bibliography.

Diseases of Children. Medical and Surgical. By **Henry Ashby, M.D., Lond., F.R.C.P.**, *Physician to the Manchester Children's Hospital, etc.*; and **G. A. Wright, B.A., Oxon., F.R.C.S., Eng.**, *Assistant Surgeon to the Manchester Royal Infirmary, etc.* Fourth Edition. Enlarged and thoroughly revised. Edited for American Students by **WILLIAM PERRY NORTHRUP, A.M., M.D.**, Professor of Pediatrics, the University and Bellevue Hospital Medical College, etc. New York: Longmans, Green & Co. 1900. Pp. 894-xxvi. Illustrated. \$5.

The earlier editions of this text book were reviewed in the ARCHIVES OF PEDIATRICS at the time of their publication and the esteem in which the work is held is shown by the appearance of the fourth edition so soon after the third. The basis of the work was the clinical material under the charge of the authors at the General Hospital for Sick Children at Manchester, England. The book was never intended as an exhaustive treatise, but the new edition is so extended by the authors and so many parts have been rewritten that some of the chapters are more complete than are to be found in more pretentious publications.

In preparing the fourth edition the whole of the work has been thoroughly revised and many of the chapters have been entirely rewritten. Considerable additions have been made to the text and many new photographs and plates have been added.

The diet and hygiene of infants and children are considered in a chapter dealing with the newly-born infant, infant feeding, inanition fever, wet nurses and weaning. Fifteen pages of this chapter are devoted to artificial feeding, cow's milk, modified milk, sterilization and kindred subjects.

The statement that "What is of far more importance than the question of 'the cow' is the question as to the health of the cows, and how they are fed, and the care taken to prevent the contamination of the milk with organic matters" will meet with the approval of all who study the subject of wholesome milk for infants.

Credit is given to Rotch, Freeman and others in this country for their investigations. The milk laboratory is stated to be out of the reach of the majority of practitioners, and the authors

give directions for securing gravity cream by the usual method of allowing the milk to stand in a cool place. To render the diluted milk more nutritive they add a malted starch and consider that, in some instances at least, they render the milk so diluted more easy of assimilation than milk diluted with water only.

Where milk can be obtained absolutely fresh and uncontaminated and is consumed at once sterilizing processes are not considered necessary, but for most milk it is best to expose it to a temperature of 70°-75° C. Milk heated for some time at 100° C. suffers destructive changes.

The chapter is practical and while some of the proprietary foods are mentioned by name the authors do not hesitate to state that these foods will, if used for any length of time, cause scurvy and rickets.

The heading of acute gastrointestinal infection is used to describe what is also called inflammatory or zymotic diarrhea, the cholera infantum of the older writers. The morbid anatomy is clearly stated, but except for the mention of the presence of microorganisms the bacteriological side of this form of intestinal disease is omitted.

The subject of the diseases of the digestive system is continued under the heading of chronic gastrointestinal catarrh or gastrointestinal atrophy. The terms chronic vomiting, chronic diarrhea, simple atrophy, marasmus, malnutrition and athrepsia are designated as prominent symptoms of chronic gastrointestinal catarrh. The treatment, in infants, consists principally in careful feeding. Milk is to be modified to a low percentage of proteins.

Appendicitis is not entered as a heading but is described as perityphlitis or appendicular peritonitis. The article is short and succinct. The term rheumatic appendicitis is deprecated and all observers of recurrent cases must agree that the designating adjective should not be used. It is a question, however, whether we can always agree as to an idiopathic peritonitis in children. No matter how apparently slight the exciting cause may seem it is more than an idiopathic one.

The advisability of opening and draining the abdomen in all cases of tuberculous peritonitis is regarded as established by the results of cases that were under the care of the authors.

Gland fever is mentioned as a disease probably dependent

upon the absorption of toxic materials from a mucous membrane, though it may be, rarely, idiopathic.

It is difficult to accept some of the reports of epidemics of gland fever and practitioners will do well to look for a causative factor in the mucous membranes.

In the treatment of diphtheria antitoxin is urged as the most important therapeutic measure, while it is also stated that the mortality statistics are difficult to give as it is well known that the epidemics of diphtheria vary in their severity.

It is to be regretted that intubation does not seem to gain a stronger foothold in England and the authors are so in favor of tracheotomy that intubation is felt to have a limited field of usefulness.

Enteric fever is well described, and the treatment is satisfactory. There is no reference to the question of operative measures for intestinal perforation and hemorrhage.

Malarial fever is given a small place as the disease is rare in England, except the severe cases that are imported.

Holt is quoted as the American authority on the disease. No mention is made of blood examinations for the detection of the plasmodium.

The subjects relating to diseases of the nervous system have been given added space.

Tetany as distinct from tetanus, with which it is so often confused, is described as a form of toxic spasm most frequently associated with rickets.

Cretinoid idiocy or congenital myxedema is successfully treated by the thyroid extract, but the results of the treatment we do not yet know. The mental power of cretins is not up to the average.

These opinions are also held by observers in this country.

The surgical part of the book is brought up to the standard of the medical side. Hip joint disease and cases of congenital dislocation of the hip are well illustrated by Röntgen ray photographs. The same means of illustrating the separation of epiphyses and fractures are used with good effect.

Dr. Northrup in the appendix gives details of the methods of modifying milk. Intubation is also described, and from an American standpoint we would agree with this part of the work rather than with the views of the authors.

The subjects of meat poisoning, lithemia, mediastinoperi-

carditis, branchial fistulæ, infantile scurvy, Koplik's spots, granular contracted kidney and chronic arthritis with glandular and splenic hyperplasia are either new or revised to the present time.

The work is one that stands for the best in clinical writing. Pathological and bacteriological questions are omitted and the whole book is made as practical as possible.

It is a book that should be read by all medical men who have any interest in the clinical study of disease in children.

Care and Treatment of Epileptics. By William Pryor Letchworth, LL.D.: *Ex-President of the New York State Board of Charities, Ex-President of the Eleventh National Conference of Charities and Correction.* Author of "The Insane in Foreign Countries," "Children of the State," "Relief and Reform," "Homes for Homeless Children," etc. New York and London: G. P. Putnam's Sons. *The Knickerbocker Press.* 1900. Pp. xi.-246. Illustrated. \$4.

It is seldom that so sumptuous a book is issued on a subject that relates to the care of an unfortunate class of mentally unstable people. It is also rare that a work of this kind comes from the pen of one who is not a graduate in medicine.

Mr. Letchworth's efforts as an instructor of the medical profession are not maiden ones as his volume on the "Insane in Foreign Countries" is well and favorably known. For almost a quarter of a century the author has been a member of the New York State Board of Charities.

The characteristics of epilepsy as described by Peterson and Wildermuth are given in the first chapter. The statements of Spratling, Wilmarth, Carson and others are quoted as to the need for separate and special provision for the care of epileptics in colonies where they can have suitable out-of-door occupations and environment. Such colonies and homes should provide for the utilization of the epileptic's labor and for the study of the best educational methods to be employed.

The first State to provide a special institution for epileptics was Ohio and there are now five States, more or less thoroughly equipped for the care of the epileptic and epileptic insane.

The New York State Colony, the Craig Colony, is so well known that it is recognized as one of the most beneficent

institution in the world. This colony was named in honor of Oscar Craig who was for some years president of the State Board of Charities.

The author gives Dr. Peterson the fullest credit for his gratuitous services in behalf of the colony. All through the book it is gratifying to find that all who labor for the betterment of the epileptics are given recognition for their efforts.

Besides the farms and colonies of this country the author describes similar institutions in Canada, England and in Continental Europe.

Detail of management, expense, medical supervision and the methods of employment and education are interspersed with quotations from the writings of the officials connected with the institutions. The volume is supplied with a full index, and the illustration and plans of buildings add to the value of the book. A work of this kind cannot fail to do good and if it awakens anything like the interest it should in the study and care of the epileptic it will serve the author's purpose in his well-directed object to benefit the one hundred and thirteen thousand epileptics in this country and the unknown thousands abroad.

Convulsions in Infancy.—M. Thiemich.—The functional clonic and tonic, general and partial contractions of the muscles in children under two years of age, with more or less severe functional disturbances in heart, respiration, etc., and without macroscopic evidence of any affection of the central nervous system, have been attributed to an autointoxication, proceeding either from the intestines, the intermediate metabolism, or from a certain organ, the liver for instance. But Thiemich states that the injection of an entirely harmless salt, such as sodium chlorid in a very hypertonic solution, into the circulation of an animal, a rabbit for instance, will produce similar general convulsions. This action is due exclusively, he considers, to the disturbance of the osmotic inter-relations between the blood and the tissues, and as we can clinically establish, in sick infants, by the sinking in of the fontanelles and bulbi, the dryness and deficient elasticity of the skin, that the tissues are deficient in water, the same etiology possibly applies to the cerebral symptoms and especially the convulsions in eclampsia infantum.—*The Journal of the American Medical Association from Muenchener Medicinische Wochenschrift.*

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, January 29, 1900.

GEORGE B. FOWLER, M.D., PRESIDENT.

HOW THE MILK SUPPLY OF NEW YORK MAY BE IMPROVED.

DR. HENRY DWIGHT CHAPIN read a paper on this subject. He stated that the milk supply of New York City is derived from five States and thirty-four counties, and that the time of delivery of the milk to the consumer after milking varied from twelve to thirty-six hours. About 75 per cent. of the milk was shipped to the city from large receiving stations, or "creameries," and because of this wholesale method of handling the milk it is now possible to have much more of it properly transported, packed in ice, than was formerly the case when it came directly from numerous small dealers. A number of assays showed that the milk contained usually about 4 per cent. of butter fat, the lowest of thirty-two assays having been 3.10 per cent., and the highest 5.25 per cent. Much of the bottled milk contains a good deal of dirt, which, while not in itself especially hurtful, favored the early souring of the milk. From the fact that large quantities of preservatives, such as boric acid, borax, and formaldehyd, are sold in the dairy districts, it was evident that the practice was still common of adding such substances to milk to improve its keeping qualities. The least that could be said of such a practice was that it hardened the casein and made the milk less digestible.

The great need of a large city like New York is a fresh, clean milk that will require neither super-heating or the addition of a preservative in order to keep it in safe condition against the time of consumption. Considering the importance of milk in the nourishment of infants and as the universal food, the subjects of its source, care and distribution are properly matters for consideration by the medical profession. He advocated a medical commission that would make a careful study of the whole subject and later into friendly and advisory relations

with any milk dealer who might desire the benefit of their counsel.

The idea of such a commission was not a new one having been started by Dr. Coit, of Newark, N. J., some years ago and successfully carried on since that time.

THE WORK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE IN
CONNECTION WITH THE PRODUCTION AND HANDLING OF MILK.

MAJOR HENRY E. ALVORD, Chief of the Dairy Division, Bureau of Animal Industry, at Washington, D. C., presented this topic for consideration. He said that the function of his department was to acquire and disseminate useful information to dairymen, as well as to find suitable markets for dairy products. While reliable statistics were not available, a conservative estimate placed the number of cows in this country at about five and a half millions, which gave about half a pint of milk daily for each person living in the United States. That milk had improved in quality in recent years could not be doubted, and he was disposed to attribute this chiefly to the individual enterprise of dairymen. He was one of those who believed that the general quality of the milk supply is better than is popularly supposed. A standard of 3 per cent. of butter fat was sufficient for all practical purposes—indeed, except from a commercial standpoint, a moderately low percentage of this ingredient was not harmful. Looking broadly at the subject, he was positive that the actual presence of disease germs in the milk was rare, and the cases in which injury had been proved to have resulted from their presence, still more rare. He was strongly opposed to the use of preservatives in milk, and almost equally so to the very common plan of sterilizing or pasteurizing milk. Undoubtedly the last two modes of treating milk were justifiable and proper under special circumstances, but ordinarily all three of these plans of improving the keeping quality of milk were to be looked upon as nothing more than a premium on carelessness and filth in the dairy. It was well to remember that condensed milk is less digestible than good natural milk.

Concerning the food value of skimmed milk Major Alvord took a firm stand, declaring that 100 pounds of skimmed milk contain more valuable food for man than a similar quantity of whole milk, and that butter fat must not be thought to be *the* valuable ingredient of milk. It was because of this view that

he felt so impatient when contemplating the unscientific attitude of the Board of Health of New York City in excluding all skimmed milk as a market product. Other cities had found it practicable and desirable to allow the sale of skimmed milk, under proper restrictions, and among the mill-hands of the Connecticut valley it was a common and valuable food-stuff.

DAIRY BACTERIOLOGY.

PROFESSOR H. W. CONN, of Wesleyan University, Middletown, Conn., took up this phase of the general subject for discussion. At the outset he disclaimed all intention of being an alarmist, though truth compelled him to say that it had been estimated that excrement was such a prominent ingredient of the grosser impurities found in milk that New York City consumed in this way with its daily supply of milk about 300 pounds of cow's excrement. One should not be deluded into the belief that by passing the milk through a centrifuge or through a strainer the finer impurities, such as bacteria, are eliminated; on the contrary, it had been conclusively demonstrated that both these processes actually caused an increase in the actual count of the bacteria in the milk. This was to be explained by the fact that such attempts at purification of milk necessarily cause the breaking up of masses of dirt in which are imprisoned large numbers of bacteria; hence, the number of bacteria per cubic centimetre is augmented. Ordinary city milk contains from three to six million bacteria per cubic centimetre, the number varying with the cleanliness of the dairy, the age of the milk, and the temperature at which it has been kept. It was reassuring to know that only a few of the bacteria were pathogenic. The diseases which could be attributed to the ingestion of bad milk he divided into three classes, *viç.*: (1) those derived from the cow; (2) those arising from secondary contamination, and (3) those resulting from the poisons formed by the growth of bacteria in the milk. Of the diseases derived from the cow, tuberculosis easily took the first place, though cases were on record in which scarlet fever and diphtheria had been communicated to the human being from this source. Of course, if the tuberculous process were located in the cow's udder, tubercle bacilli would be in the milk, but it was still uncertain if *localized* tuberculous processes in other parts of the cow would lead to the appearance of tubercle bacilli in the milk

of that cow. Of course, he did not refer to a condition of general tuberculosis. From the fact that primary intestinal tuberculosis is rare in man, and because it is probable that the germs producing human and bovine tuberculosis are not identical, there was good reason for believing that the danger of contracting tuberculosis from drinking milk had been greatly exaggerated. Additional facts supporting this contention were, the steady decrease of tuberculosis among human beings in all civilized communities at the same time that bovine tuberculosis was on the increase, and the equal decrease of human tuberculosis in countries where milk is taken raw and in countries where it is commonly sterilized before being consumed. Prominent among the diseases of the second class, or those arising from secondary contamination, was typhoid fever, and the reason for this prominence was to be found in the ability of the typhoid bacillus to grow in the milk. Within five years fifty epidemics of typhoid fever had been traced to a contaminated milk supply. The summer diarrheas were familiar examples of the diseases of the third class. They were not due to any particular bacillus or germ. While the ideal milk supply does not by any means include either sterilization or pasteurization, the speaker thought these methods of preserving milk could not at present be wholly dispensed with.

THE WORK OF THE NEW YORK BOARD OF HEALTH.

DR. HERMAN BETZ, Chief Inspector of Milk for the Health Department, described the work in which he was engaged. He stated that the Borough of Manhattan is divided into nine inspection districts, and that last year 8,047 inspections were made. In addition to this, 48,832 samples of milk had been examined, and 117 milk-dealers had been placed under arrest for selling milk below the required standard. No condensed milk made from skimmed milk was allowed to be sold in New York City, and the same was true of milk containing chemical preservatives. Each milk-can has on its cover certain distinguishing marks which enable the health authorities to trace it to the point from which the milk was obtained. If the analysis of a suspected sample shows it to be more than 5 per cent. low in solids or 3 per cent. low in butter fat, the person selling this milk is arrested and proceeded against.

THE QUESTION FROM THE MILK-DEALER'S STANDPOINT.

MR. A. CUDDEBACH, in speaking for the milk-dealers, expressed the opinion that the acknowledged improvement in the quality of the milk supply was due to the more general use of bottled milk, and the tendency of concentration of the milk traffic in the hands of large companies.

MR. L. HALSEY, speaking from the same point of view, pointed out the necessity for milk to command a good price in the market if dairymen and milk-dealers are to be expected to furnish a pure and wholesome product.

DR. H. G. PIFFARD commented on what he designated as the absurdity of the double standard set by the Board of Health, and showed how it had resulted in a demoralization of the dairy industry. This had been brought about by the fact that valuable cows yielding a milk rich in butter fat had been supplanted by inferior cattle yielding milk poorer in butter fat, but capable of being made to conform to the other standard, *i. e.*, that for the total solids. This double standard is 3 per cent. for butter fat and 4 per cent. for the total solids. As the casein varies directly with the proportion of butter fat, if a given sample of milk contains a minimum of butter fat and a maximum of casein, one can be sure that the milk has been sophisticated. Dr. Piffard advocated restricting the source of supply for milk coming to New York in cans to a district bounded on the north by an east and west line passing through Albany, and on the west by a north and south line drawn through Binghamton.

Artificial Serum in Cure of Inguinal Hernia in Children.

1. C. Garayzabal.—This modification of Lannelongue's sclerogenic method of treating hernia consists in the injection of an artificial serum—sodium sulphate, 5 grammes; sodium phosphate, 2.5 grammes to 50 grammes distilled water—instead of using a caustic and irritating substance. Injected around the inguinal ring it causes the obliteration of the hernial sac by adhesions of its serous surface, while it also proves a tonic for the muscles which form the ring. One c.c. at a time is injected, and a compressing bandage applied. Three or four injections with an interval of eight to ten days resulted in the complete cure of the hernia in each of the seven cases thus treated to date.—*The Journal of the American Medical Association from Annales del Circulo Medico Argentino.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting December 12, 1899.

DR. E. E. GRAHAM, PRESIDENT.

CASE WITH ROTARY SPASM; CASE OF ERB'S PARALYSIS; CASE WITH CEREBRAL HEMIPLEGIA, AND CASE OF CEREBRAL DIPLEGIA.

DR. C. F. JUDSON.—CASE I.—Rotary spasm. The movements of the head were from side to side, alternating with nystagmus, and aggravated by excitement. The child was rachitic. The mother had three attacks of chorea in childhood.

CASE II.—Erb's paralysis, the result of a forceps delivery. When observed in the dispensary there was marked atrophy of the deltoid, trapezius and extensor muscles of the forearm. The supra and infra-spinatus, rhomboidei and serratus magnus were also affected. Trophic and sensory changes were present. Supination was affected by the biceps. There was no contracture at the elbow, but the fingers could not be straightened.

CASE III.—Cerebral hemiplegia. Girl, aged two years, nine months. At the age of ten months paralysis of the left half of the body came on suddenly, ushered in by convulsions and followed by stupor. She lost the power of speech completely. When eighteen months old the convulsions recurred during the night and again the night before she was exhibited. Facial paralysis (left sided) was first noticed at this time. At the date of observation the child had partially recovered, could speak a few words and seemed intelligent. Post-paralytic phenomena observed were muscular twitching and a fine tremor of both arm and leg. There were moderate trophic changes. The patellar reflex could not be elicited; the plantar was present.

CASE IV.—Cerebral diplegia. M. T., female, aged fifteen months. Labor tedious, breech presentation. Examination showed marked muscular weakness. Expression of defective intelligence. The head and body could not be supported, but were constantly thrown backward in a spasmodic manner, while the legs were rigidly extended. Markedly ataxic movements of arms and legs were noticed when she lies on her back. There was inability to evacuate the bladder except at long intervals, two or three times in the twenty-four hours. The plantar, patellar and abdominal reflexes were present. No ankle clonus. The child knew its toys, grasped objects fairly well, and could

flex legs on pelvis with the aid of her hands. She could speak a few words. It was evidently a birth paralysis, probably due to meningeal hemorrhage.

DR. JOHN MADISON TAYLOR.—I wish to ask Dr. Judson to tell us what are the rotary and spasmodic movements which the child makes, other than the one that we now see, which is chiefly a tendency to view objects sidewise, and nothing else. This could be due to a high degree of refractive error in the eye, among other things, and such a condition alone might produce rotary spasms.

DR. J. P. CROZER GRIFFITH.—I had the opportunity of seeing the first case, that of the colored child, when it first came to the hospital as it was in my service at the time. At first its movements were very striking. It had no nodding but had an almost constant rotary movement of the head. This movement would cease at times and be replaced by the nystagmus; apparently the two did not occur together. The rotary spasm is quite uncommon as far as my experience goes and does not seem to be dependent on any organic lesion. Irritation of the cortical centres is generally supposed to be the cause.

In regard to the case no. III. I was much interested some years ago in finding how few cases comparatively there were of post-hemiplegic tremor reported. Choreiform movements and even athetosis appear to be much more common. I have come across but one case of tremor though I have seen a large number of cerebral palsies.

DR. A. A. ESHNER.—I wish to say a word about the first case, that of rotary spasm. We have seen a not inconsiderable number of such cases at the Infirmary for Nervous Diseases, and though Dr. Griffith did not say so, while of course he knows rickets is probably the most important etiologic factor. In all of the cases that I have seen rickets has been the cause and with the correction of this condition the spasm has disappeared. In relation to athetoid movements, choreiform movements and tremor in relation to cerebral lesions were exhibited recently by Dr. Spiller, a case in which there evidently was a cerebral lesion occurring early in life, without noteworthy paralysis, but in which there was unilateral, intermittent or remittent tonic spasm of varying intensity. It seems to me that these several phenomena are dependent upon similar causes, their variations depending upon differences in localization. It may thus be

conceived that a lesion in one portion of the central nervous system might give rise to the more familiar phenomena encountered, the palsies; a lesion in a neighboring situation to the athetoid movements, and other lesions in nearby situations to the choreiform movements and the tremor respectively. In most cases the spasmodic movements are associated with palsy. Rarely, as in the case of Dr. Spiller, the spasmodic may be present without the paralytic phenomena.

DR. JUDSON.—I did not have an opportunity of observing case no. III. until last summer, and the mother was not able to give me a clear description of the early convulsions. I was not able to determine in what group of muscles they originated. They had not recurred, until the night before the meeting, for a period of six months, when they seemed epileptic in character. The post-paralytic phenomena noticed were a fine tremor of the hand and a spastic condition of the leg, and this latter was observed by the mother only occasionally.

With regard to the colored child there was quite marked evidence of rickets; the epiphyses were enlarged, the abdomen prominent, the anterior fontanelle open at sixteen months and teething somewhat delayed. Under better conditions as to diet the child improved.

DRS. ALFRED HAND, JR., and F. W. STEWART reported a case of Dilatation of the Colon. See page 161.

DR. D. L. EDSALL.—It seems to me that the reason that so many of these cases are considered idiopathic is that when they come to autopsy the distension of the bowel is so great as to disturb the relations of the various parts of the bowel and of the surrounding structures to such an extent that a cause which may have been evident early in the disease becomes masked. For instance, in the case which I reported here last year, the cause was undoubtedly kinking of the sigmoid; had this case reached the stage of very extreme distension of the colon the condition could scarcely be attributed to such a cause because it would be most logical to conclude that the kinking was then secondary to the distension. I have been confirmed in my belief that kinking in the sigmoid is a cause of this condition which must be considered probable in many cases, and also that the terms idiopathic and congenital are, in many instances, merely masks for ignorance, the ignorance depending upon

inability to investigate the case *post-mortem* or upon imperfect consideration of the findings at autopsy.

The case recorded recently by Göppert (*Archiv. f. Verdauungskrankheiten*), would commonly have been classed as congenital and idiopathic.

The child was born in apparent good condition, but it was extremely constipated and soon presented the usual appearance of dilatation of the colon. Göppert saw the case in the second week of life, and investigating the rectum found distinct kinking at the upper part. The treatment was based upon the discovery of the kink; the bowel was washed out and a tube placed permanently in the bowel, the result being practical cure after a series of months of treatment. The review of the literature, which was very carefully undertaken, demonstrates that many cases already reported may fairly be classed as resulting from kinking of the sigmoid or upper part of the rectum.

I do not wish to claim that kinking of the sigmoid is the chief or only cause of dilatation of the colon, but I do think this point has not been sufficiently emphasized in most of the papers on the subject.

DR. HAND.—With regard to the medical treatment I do not wish to emphasize to too great extent the improvement which was apparent in this case. It simply meant to my mind that the boy was getting in fit condition for some surgical procedure, the making of an artificial anus, or whatever seemed best. This could not be carried out because of his removal from the hospital.

Relation of Adenoids to Diseases of the Ear.—R. Lucas (*Internat. Centralblatt für Laryngol.*, No. 9, Vol. xv.), deals with this subject at length in a recent valuable Parisian thesis. Adenoid vegetations maintain a persistent inflammatory condition, which very easily spreads to neighboring organs. They also give origin to occlusion of the openings of the Eustachian tubes and thereby disturb the normal air-pressure in the middle ear. From these causes otitis arises: (1) through the spreading of an inflammatory process; (2) through mechanical obstruction. These forms of otitis are especially severe in small children, in whom they frequently lead to deaf-mutism. In such cases the operation for removal of the adenoid vegetations must be undertaken without delay.—*The Medical Age*, Vol. xvii., No. 20.

Pathology.

Brill, N. E., and Libman, E.: A Contribution to the Subjects of Chronic Interstitial Nephritis and Arteritis in the Young, and Family Nephritis; with a Note on Calcification in the Liver. (*The Journal of Experimental Medicine.* Vol. iv., Nos. 5 and 6. 1899.)

A girl of fourteen years. (For clinical history, see page 204.)

Post-mortem examination.—Slight general edema, more marked on the left side of the body, with marked edema of the feet.

Lungs.—Slightly adherent at the apices. Moderate pulmonary edema. Both lungs are very firm. In the right upper lobe there is a very dense non-crepitating area which is infiltrated with blood. In the right lower lobe there is a similar smaller triangular area. In the left upper lobe are several patches of consolidation and one large hemorrhagic area. In the left lower lobe there is a large recent hemorrhage. There is marked subpleural emphysema of both lungs.

Heart.—On the anterior aspect there is very much fresh fibrin; the left ventricle shows marked hypertrophy, the thickest part of the wall measuring $3\frac{1}{2}$ cm. and the thinnest 2 cm. The aortic valves show moderate atheroma. The flaps of the mitral valve are slightly thickened. The wall of the right ventricle is somewhat hypertrophied. The aorta shows patches of atheroma especially around the openings of the coronary arteries. The coronary arteries are markedly atheromatous. On the endocardium between the aortic and mitral valves, and on one cusp of the mitral are patches of marked atheroma. The cardiac muscle is pale but firm.

Spleen.—Malpighian bodies are very distinct. Almost the entire spleen is taken up by a large hemorrhage.

Kidneys, small, red. The capsules are very adherent; the surface irregularly granular. The kidney substance is firm; the cortex is very narrow. The pelves of both kidneys are markedly enlarged and surrounded by fat. The markings are very indistinct. On the surface of the kidney are enlarged veins, and some of the glomeruli can be indistinctly seen as white dots.

Stomach.—Catarrhal inflammation. A few hemorrhagic erosions near pylorus.

Intestines.—A large hemorrhage in the mesentery. No emboli nor thrombi can be found in the mesenteric arteries or veins or their branches. The superior mesenteric artery is markedly atheromatous. The small intestine shows catarrhal inflammation; the contents are mucoid and bloody.

Pancreas is indurated.

Liver somewhat enlarged, is fairly firm, shows chronic congestion and some increase in the connective tissue. In the right lobe on the anterior and inferior surfaces are triangular areas reaching to the surface in which there is a firm deposit in and along the vessels looking as if the vessels were firmly thrombosed.

The brain could not be examined.

Microscopical examination.—*Lungs* show the changes characteristic of brown induration with a fair amount of increase in the interstitial connective tissue. The lower lobe shows areas where the air-vesicles are filled with epithelial and pus-cells and numerous red blood corpuscles. The right upper lobe shows the same condition with a larger and more recent hemorrhage. The left upper lobe contains a large area of croupous pneumonia. The left lower lobe shows marked recent infiltration with red blood corpuscles.

Liver.—The capsule is thickened. The capillaries are dilated and there is a little increase in the interstitial connective tissue. The liver cells show marked degeneration and pigmentation. There are small hemorrhages under the capsule. The walls of the hepatic veins are thickened and the veins themselves are dilated. The arteries show marked obliterating endarteritis. Scattered throughout the parts of the liver which showed such a peculiar condition macroscopically are irregular areas which have become impregnated with lime salts.

Spleen shows the changes of acute inflammation. The capsule is thickened, and there is an increase in the interstitial connective tissue. The pulp is infiltrated with red blood corpuscles. The arteries are the seat of a marked obliterating endarteritis.

Kidneys.—The right kidney shows a marked chronic interstitial nephritis. In some areas the renal parenchyma is entirely replaced by fibrous tissue. Many of the glomeruli are converted

into fibrous balls. Some of the tubules are dilated, others are atrophied; some contain casts, others granular material or blood. The epithelium shows marked degeneration. There are small, scattered hemorrhages present, and signs of chronic congestion. The arteries show marked obliterating endarteritis, many of them being entirely closed. Scattered throughout the kidney are very small areas similar to those which have been described as occurring in the liver. The left kidney shows the same changes as the right, and in even more marked degree.

Pancreas contains areas of infiltration with round cells between the lobules, and in some places in the centre of the lobules.

Coronary arteries.—There is extreme thickening of the intima, fibrous metamorphosis of the media and extensive calcific deposits and necroses in the intima. One of the smaller peripheral arteries shows, microscopically, a thickening of all the walls; the intima contains calcified and necrotic areas, and there are broken-down thrombi attached to it. The media is almost entirely replaced by connective tissue. There are small hemorrhages in the adventitia. *The superior mesenteric artery* likewise shows irregular thickening of the intima and of the media with small calcific areas in the intima.

Congenital Scoliosis is said by Hirschberger (*Zeitschrift für Orthop. Chirug.* B. vii., H. 1.) to be a very uncommon condition, and because of its association with deformities and monstrosities which render life impossible, it is even less seldom brought to the physician for treatment. If we understand by the term congenital scoliosis only those cases which have originated intra-uterine either from some improper pressure or from unequal development of the spinal column, a prognosis is difficult to give. But that there is an increase in the deformity as soon as the child attempts to sit upright or stands is undisputed. Some of these cases may reach adult life, but diagnosis of the condition then is extremely hard. The bending at the seat of the curvature is more sudden than in the acquired form. The spinous processes turn suddenly at the seat of trouble from the normal and point in a true sagittal direction, either towards the right or left. There is no prominent amount of torsion, and the processes are turned towards the convex side. The X-rays will aid in verifying the diagnosis.—*Philadelphia Med. Journ.* Vol. iv., No. 23.

Current Literature.

MEDICINE.

Brill, N. E., and Libman, E.: **A Contribution to the Subjects of Chronic Interstitial Nephritis and Arteritis in the Young, and Family Nephritis; With a Note on Calcification in the Liver.** (*The Journal of Experimental Medicine*. Vol. iv., Nos. 5 and 6. 1899.)

Chronic nephritis in children and adolescents is a condition which has been much overlooked. Especially is this true of the chronic interstitial type (contracted kidney). Heubner in his monograph reported 37 cases in children. Later he saw 28 cases, mostly after scarlet fever. Of the total 65 cases there were 3 of parenchymatous nephritis, 4 of contracted kidney and 5 of chronic hemorrhagic nephritis (Wagner). From these figures it is seen that chronic interstitial nephritis is not so rare in children as the omission of reference to it in many text-books on children's diseases would indicate. Probably many cases are overlooked and are treated for anemia for a long time.

Heubner states that there are but 30 cases of interstitial nephritis on record in which *post-mortem* examinations were made. In all the cases which Heubner cites the disease was very insidious, but was easily discovered upon properly examining the patients. As a rule, the disease lasted for many years. It can, however, be rapid in its course, as was observed in one case, in a boy who died on the sixty-eighth day after the onset of scarlet fever with diphtheria, where the kidneys were found distinctly granular.

Some of the cases gave no history of a previous acute attack. In other cases the children were always anemic and had weak resisting powers.

It is, of course, possible that these children had had an attack of acute nephritis in earliest infancy or childhood, so that the question of the occurrence of a primarily contracted kidney in children must remain an open one.

Baginsky mentions a case in a girl aged four which simulated diabetes insipidus.

The following case was observed by the authors:

Ida W., aged fourteen years. *Family History*.—Father died of pneumonia at the age of forty-two years. His previous his-

tory was negative. Mother is forty-five years old, and without signs of renal or arterial disease. Of twelve children, six died young of causes which are unknown. Two of the older children show evidences of renal disease. One, a girl of nineteen years, is suffering from an advanced chronic interstitial nephritis. The oldest son, aged twenty-four years, has a slight systolic murmur at the aortic orifice. The apex beat is to the left of the mammillary line. The urine is clear; specific gravity, 1012; contains no albumin and no casts; urea, 9 grains to the ounce.

Previous history.—The girl has always been weak and under-sized. She could not run without getting short of breath. She has never menstruated. One year before admission her face and feet were swollen during the whole winter. She has always been better in the summer. She has had a cough with expectoration. When six months old she had an attack of gastroenteritis; no other illness recorded.

Present history.—A few days ago she became frightened at a fire. The day following she was found to be paralyzed on the left side of the body.

She then complained of headaches, which have continued. She had fever for the first three days, and she coughed up a small quantity of blood. Urination and defecation are normal. Intelligence and memory are not impaired. The paralysis has improved somewhat, but there are twitchings of the entire left side of the body.

Physical examination.—Under-sized girl, poorly nourished, with a dirty, anemic color. The tongue is moist and coated. There are no defects in the teeth, and there is no lead-line present. There are no signs of any corneal inflammation. She has a left-sided hemiplegia with some rigidity. Sensation is unimpaired in the upper but diminished in the lower extremities. *Lungs*, negative. *Heart*, dulness extends from 1 cm. to the right of the sternum to 5 cm. to the left of the mammillary line. The upper border is at the third rib. The apex beat is in the fifth space in the axillary line. The heart's action is tumultuous and forcible. There is a systolic murmur over the mitral area, transmitted a short distance to the left. Over the aortic orifice there is heard a systolic murmur transmitted up and down the sternum and to the vessels of the neck. The second aortic sound is accentuated and reduplicated. The radial *pulse* is tense, the artery is very much thickened and slightly tortuous. The

liver dulness extends from the fourth space to the free border of the ribs. *Spleen*, negative. *Abdomen*, negative. The right pupil is slightly larger than the left.

Urine neutral, 1010, clear, and contains albumin—1.4 grammes to the litre (Esbach); urea, $6\frac{1}{2}$ grains to the ounce; hyaline and granular casts and a few pus cells are present. The quantity of urine could not be measured because the urination was involuntary.

After a long illness, with temperature, in which the patient was comatose, she died.

Clinical diagnosis—Chronic interstitial nephritis. General arteritis. Atheroma of aorta and aortic valve. Cardiac hypertrophy. Cerebral hemorrhage. Hemorrhages into the lung and spleen. Hemorrhages in the area of distribution of the superior mesenteric artery. Fibrinous pericarditis.

The *post-mortem* examination disclosed numerous changes and are classed under the head of

Anatomical diagnosis.—Pulmonary edema; brown induration of the lungs, hemorrhages into lungs, spleen and mesentery; lobular pneumonia; cardiac hypertrophy; general chronic arteritis; chronic congestion of the liver, with calcific deposits; acute splenic tumor, catarrhal inflammation of the gastro-intestinal tract; chronic interstitial nephritis (small, red kidney).

An elaborate report of all the *post-mortem* findings accompanies the article. (See also page 201.)

The main points of interest in the case are as follows:

1. The occurrence of a very advanced primary chronic interstitial nephritis at the age of fourteen years.
2. Its presence in other members of the same family.
3. The extensive and marked arterial changes present.
4. The hemorrhagic diathesis, and especially the occurrence of a large hemorrhage in the mesentery.
5. The occurrence of calcific deposits in the liver.
6. The case draws our attention again to the latency of some of these cases of chronic nephritis in children. There is no doubt that some of them have been regarded as instances of diabetes insipidus. The necessity of a careful and continued observation of the heart and vessels in such cases is apparent. Others are treated for a long time for anemia without its cause being discovered. Still others do not present themselves for treatment until the fatal termination is close at hand, the patients

having had no marked symptoms. The fact that chronic nephritis may run so latent a course and may occur at any age should lead us to pay as much attention to the examination of the urine of children as of adults.

Milligan, W.: Some Observations Upon the Diagnosis and Treatment of Tuberculous Disease of the Middle Ear and Adjoining Mastoid Cells. (*The Journal of Laryngology, Rhinology and Otology.* Vol. xiv., No. 11.)

A large number of suppurative middle ear disease with accompanying bone lesions are of a tuberculous nature. The examination of the pus from the ear is frequently negative, though the subsequent history of the cases will show all the clinical conditions of tuberculosis.

Amongst causes which may be considered predisposing are the following: (1) hereditary tendency; (2) unhealthy environment; (3) unsuitable feeding; (4) exposure to infection from tuberculous relatives; (5) the presence of tuberculous nasopharyngeal adenoids.

An important point arises in connection with the treatment of the accompanying enlarged lymph nodes. Some of the lymph nodes may be enlarged purely as the result of septic absorption, and if the morbid cause be removed this enlargement will gradually subside, especially if aided by suitable treatment. But many of the lymph nodes are tuberculous, and are prone to undergo caseous degeneration, while at the same time they are a source of possible systemic infection. Hence, after the mastoid area and the cavity of the middle ear have been attended to, and as soon as the condition of the patient admits of it, an operation should be undertaken with the object of removing these enlarged and tuberculous structures.

The facial paralysis which so often accompanies tuberculous disease of the middle ear is unfortunately usually permanent. Something may, however, be done by facial massage, and the internal administration of strychnin to assist in maintaining the tonus of the facial muscles.

The general conclusions may be summarized as follows:

1. That primary tuberculous disease in and around the middle ear is of fairly frequent occurrence, and that it most usually attacks the children of the poor, especially the poor of the large cities.

2. That a generalized tuberculous infection may arise from a primary focus within or around the middle ear.

3. That the prognosis in such cases is not very favorable, at least 40 to 50 per cent. of the cases succumbing, even after operative treatment has been undertaken.

4. That in many of the cases operative interference is contra-indicated, owing to the extent of the existing disease and the asthenic condition of the patients.

5. That when operative interference is feasible, the main object should be to scrape away all available foci of disease and to provide efficient drainage.

6. That the best and most reliable means of establishing the tuberculous nature of the disease is by means of properly-conducted inoculation experiments.

Stoeltzinger, W. and Lissauer, W.: Treatment of Rachitis by Thymus Extract. (*Jahrbuch für Kinderheilkunde und Physische Erziehung.* Bd. I., Heft 4.)

The authors were led to try thymus extract by a report of von Mettenheimer, who claimed to have obtained amelioration of the nervous symptoms of the softening of the cranial bones and also diminution of the size of the fontanelles by the use of this substance. The authors report the histories of six cases of rickets treated with thymus extract for three months. The physical condition of these children at the beginning and at the end of this period is reported minutely. The conclusions of the authors are that the treatment with thymus does not relieve the nervous symptoms, that it has no influence over any manifestation of the disease in the osseous system; that on the contrary in some of the reported cases the disease progressed in spite of the treatment.

Morkowitin: The Examination of Sputum in Infants. (*Wratsch.* 1899. No. 16. *Med. der Gegenwart.* 1899. Heft. 6.)

In obtaining sputum in very young children he uses an ordinary laryngeal applicator around which a small piece of cotton has been wrapped. The method used in introducing this into the larynx is similar to that employed in intubation. The left index finger, previously moistened with a 3 per cent. solution of boric acid, is introduced along the dorsum of the tongue, passed over the epiglottis and placed on the right side of the larynx, in order not to interfere with the entrance of air into the

lungs. The applicator is now introduced with the right hand and pushed along the side of the index finger into the larynx. The vocal cords are touched lightly to excite coughing and any sputum dislodged from below will be deposited on the cotton on the applicator.

Rolly.: Measles and Scarlet Fever Appearing Simultaneously in the Same Patient. (*Jahrbuch für Kinderheilkunde und Physische Erziehung*. Bd. I., Heft 4.)

A female child, one and one-half years old, was taken sick with vomiting, fever, anorexia, bronchitis, rhinitis and conjunctivitis. On the second day a typical scarlet rash appeared: small bright red dots, disappearing on pressure, so close in some places that they formed a uniform redness. The eyelids were swollen, the cheeks bright red, while the rest of the face was normal. The fauces were red, the tonsils enlarged, showing also a dirty grayish deposit. The tongue was coated, bright red along the edge with the papillæ much enlarged. The cervical lymph nodes were swollen. On the third day larger, circumscribed, slightly raised spots made their appearance on the face and body; there were also circumscribed spots on the palate, although no Koplik spots were found. On the sixth day the measles showed slight hemorrhages. On the eighth day, the scarlet fever rash began to fade away. The measles eruption on the ninth day showed a brownish staining. There was a trace of albumin in the urine. On the tenth day desquamation in large scales began. Two days later some furuncles made their appearance, and were incised. On the twenty-second day there was no more albumin in the urine and the child was apparently well. Although there are quite a number of cases found in literature where measles or scarlet fever followed each other at various intervals, there are only very few where the interval was less than three days. This case, and other cases reported, seems to show that where the two diseases co-exist they exert no influence over each other. When a longer time elapses between the occurrence of the two diseases, the prognosis is better when scarlatina follows measles than when the reverse takes place.

Goyens: Perforating Appendicitis in an Infant Six Weeks Old. (*Gazette Médicale Belge*. Vol. xii., No. 14.)

A baby boy, bottle fed, had had indigestion from birth. Fetid diarrhea and emaciation were marked, and a tumor

appeared in the right inguino-scrotal region. A diagnosis of strangulated hernia having been made, the child was referred to the writer for operation. The abdomen was distended, tympanitic and but slightly tender; the swelling in the inguinal region was soft, irreducible and hardly painful. The baby took food with avidity and did not vomit; he had normal, non-fetid stools during the day, and the diagnosis of hernia was abandoned. He died in collapse.

The autopsy showed an acute generalized peritonitis, with an accumulation of fetid pus in the cecal region. In this pus the appendix floated, and showed a gangrenous perforation. There was no evidence of hernia, and the condition was probably due to the irrational method of feeding, which had caused an infectious gastro-enteritis with ulceration and gangrene of the appendix. This is the only case of appendicitis in the newly-born thus far reported in medical literature, the youngest case on record being six months old.

Gordillo, L. : A Case of Late Hereditary Syphilis.
(*Archives de Méd. des Enfants.* Vol. ii., No. 12.)

An under-sized girl, nine years of age, whose father was syphilitic, had had a syphilitic eruption and coryza twenty days after birth. She was nursed by her mother, and apparently thrived. At seven years of age she had trouble with her eyes, and later mouth breathing and a change in the character of her voice led to the discovery that there was a gummatous ulcer on the hard palate, with perforation into the nose. A double interstitial keratitis existed, and the remains of an iritis in the right eye. The cervical lymph nodes and the sub-maxillary ones were enlarged. There were no lesions of the bones nor of the viscera. A simple impetiginous eruption had existed in the scalp for several months.

Lannelongue: Cervical Arthritis of a Rheumatic Nature.
(*Gazette des Maladies Infantiles.* 1899. No 24.)

A boy of four years suddenly complained of severe pain in the neck, and turned the head toward the left side. There was slight fever, and a soreness of the throat, which rapidly disappeared. Examination revealed the fact that the pain was localized in the right lateral articulations of the fourth, fifth and sixth cervical vertebræ, which gave a crackling noise on motion.

The position of the head tends to diminish the pain, by preventing motion in the affected joints. Rheumatism often involves the articulations of the cervical vertebræ, either in an acute or sub-acute form. Early in the attack it may be mistaken for torticollis, later for infantile paralysis; and if the deformity exists for some time it must be differentiated from sub-occipital Pott's disease.

The treatment should consist of the application, under chloroform, of an apparatus which will keep the head in an absolutely proper position and prevent deformity. This must be carefully applied, and early, as the resulting deformities, in these cases, are very difficult to correct later in the course of the disease.

Kelley, S. W.: The Semeiology of the Attitude and Motor State in Children. (*The Cleveland Medical Gazette*. Vol. xiv., No. 12.)

The ailing child tells little in words. It is important that the objective symptoms be closely studied and correctly interpreted.

Information on all points, that the child's attendant can give, should be elicited but sometimes it is impossible to get any history. The thermometer should be used but the investigation as to the child's condition should not stop with the temperature record.

The younger the young patient is, the less are the attitudes and motions dictated by fashion, altered by customary occupation, influenced by habit or affectation, or assumed with the intention of deceiving. They may be modified by bashfulness or fear. The attitudes and motions of a well child are graceful and easy. An uncomfortable or restrained attitude or constrained or awkward movement indicates disease or injury. This does not locate the trouble, but should excite attention and lead to closer scrutiny.

When the patient insists on sitting up or reclining against high pillows, at once suspect heart disease, although it might be asthma or pneumonia, or a double pleurisy with effusion, or even tonsillitis or bronchitis.

When a patient, with high temperature and muscular and mental apathy, resumes his muscular activity he is better. As temperature goes down temper comes up, and with it greater muscular activity.

When a child which has been sick for some time begins to toss about on the bed, constantly changing position and at rest nowhere, it is a sign of evil. In the eruptive fevers it may mean the onset of some complication. In croup or other disease of the respiratory tract it indicates very grave air-hunger. If there has been hemorrhage it shows extreme anemia. In all cases it heralds the approach of nervous exhaustion.

In the child lying on his back with his legs drawn up suspect peritonitis; but it might be a distended bladder, or hernia. If he draws up his legs to lash out again and twist and turn himself, he likely has irritation and pain, but not inflammation.

There is difficulty of distinguishing, in the infant, between paralysis and that which Fothergill called "the muscular listlessness of malnutrition." Exercise care in differentiating between true paralysis, the pseudoparalysis of scurvy, and the acute epiphysitis of hereditary syphilis. The pseudoparalysis of scurvy has been mistaken for acute poliomyelitis; and syphilitic epiphysitis mistaken for paralysis and for traumatic separation of the epiphysis. Certain complications can be extremely puzzling, for instance, arthritis following scarlatina without eruption, and accompanied with convulsions, in a child afflicted with scurvy.

Fox, Herbert: A Case of Tetany Due to Exposure to the Sun. (*British Medical Journal*. No. 2030. 1899.)

A healthy boy of thirteen years had been in the sun for some time when he was seized with vomiting and severe headache. He was sent to bed but awakened very early the following morning with pains in his arms and legs; he could not move. There were contractures and the knee jerks were exaggerated. The boy was nervous but there were no other symptoms and there was no gastric nor intestinal disturbance. He was given calomel and ammonium bromid, but it was five days before he could walk or use his hands properly.

Mayer, E.: The Tonsils as Portals of Infection. (*The Journal of the American Medical Association*. Vol. xxxiii., No. 23.)

That certain forms of infectious diseases follow closely on tonsillar affection, the same micrococci existing in the former as in the latter, and hence are mentioned as being tonsillar in origin, is to-day an established fact.

May not the pericarditis following a tonsillitis be a septic

rather than a rheumatic one? This question can be answered affirmatively.

It must be admitted that septic infection of a serious and often fatal nature occurs after tonsillar infection.

After a study of the disease of the tonsils the conclusions are: 1. Infection arises in the tonsil. 2. Tonsillar affections are frequently serious in their sequelæ and every step to prevent recurrent attacks should be taken. 3. The existing tonsillar disease should be energetically treated. 4. Careful examinations and treatment are absolutely essential in the interim. 5. Following anginas, the heart and other organs should be examined from time to time.

Packard, F. A.: Report of Five Cases of Endocarditis Occurring in the Course of Tonsillitis. (*The American Journal of the Medical Sciences*. Vol. cxix., No. 1.)

There is a steadily growing assurance that acute rheumatism should be classed among the acute infections, and while the causative agent has not yet been found our knowledge is in reality more definite in regard to this disease than it is in respect to scarlatina and many of the other well recognized infections.

Four of the five cases reported give the histories of children fourteen years of age and under who showed symptoms of endocarditis during and following the acute amygdalitis. In none of the cases was a bacteriologic examination made.

The first case, a boy of four years, was not known to have any cardiac disease, but coincident with the inflammation of the tonsils a well-marked cardiac murmur was discovered. The heart was irregular and easily accelerated. The apex was to the left. An examination one year after the attack showed the presence of a blowing systolic murmur at the apex, transmitted to the left anterior axillary line, an accentuation of the second pulmonary sound and the right border of cardiac dulness at the right edge of the sternum, the apex beat being in the normal position.

The other cases gave similar histories. In some of the cases the heart was found to be normal before the illness; in the others the evidence would point toward at least marked increase, if not origination of endocardial change by the amygdalitis or pharyngitis. It might be said that the amygdalitis and endocarditis were simply rheumatic, but in the individual cases

there was no preceding history of any of the ordinary rheumatic manifestations and in the subsequent history of the cases followed there was at no time any evidence of the presence of other members of the "rheumatic group."

Le Damany, P.: An Epidemic of Simple Streptococcus Angina. (*Archives Provinciales de Médecine.* Vol. i., No. 10.)

In the city of Rennes an epidemic of angina lasted about seven months, and attacked chiefly young boys from ten to eighteen years, although an infant of six months and several adults were among the patients. The incubation period seemed to vary from twenty-four hours to one week. Bacteriological examinations proved that the etiological factor was the streptococcus. Clinically herpes was present in very many cases, either in the pharynx, appearing on the second or third day, or on the skin as well, appearing a day or two later. White swellings of the lymph nodes were for the most part moderate, they were extensive and of long duration in some cases. Erythema also appeared in the course of the illness in several cases, independent of any medication, and was scarlatinoid, macular, papular or papulo-vesicular in form. The angina was erythematous, vesicular or pseudomembranous, and the complications included coryza, laryngitis, tracheobronchitis, pulmonary congestion, gastric disturbance, catarrhal icterus, and in the only fatal case, septicemia.

Kinneman, J. G.: Hemorrhage in New-Born. (*Indiana Medical Journal.* Vol. xviii., No. 5.)

A male baby, who weighed four pounds at birth, presented no abnormal appearance and was not jaundiced. Labor was normal. The placenta was small and the funis fragile and diminutive in size. After the completion of labor it was noticed that there was hemorrhage from the cord and around the umbilicus. The cord was retied and an application of Monsel's solution was made. Twelve hours from birth the first discharge from the bowel contained some blood. The baby died thirty-six hours after birth.

Mother and father were in good health and there was no history of tuberculosis, syphilis or a hemorrhagic diathesis.

This was the sixth child lost by the parents. All were males and all but one had died within a few hours after birth. One had lived to be six months old. The cause of death was

unknown to the parents except that in the case of the fifth child there was hemorrhage. Two other children, daughters, are aged respectively three and fourteen years. Both have been healthy from birth. The mother has two sisters who have each had two male children who had died a short time after birth. Each of the sisters has a female child who is well and strong.

Hallé, J., and Ulmann, G. : Two Cases of Sinus Thrombosis in Childhood. (*Archives de Méd. des Enfants.* Vol. iii., No. 1.)

A boy, eighteen months old, of good family and personal history had a severe rhinobronchitis, followed in three weeks by a purulent otitis media. One day later he suddenly cried out, and had a general convulsion, after which severe nervous symptoms (opisthotonus, nystagmus, somnolence) came on and death occurred in two days. The autopsy showed thrombosis of the superior longitudinal and left lateral sinus; also hemorrhages and areas of softening in the cerebrum, and purulent areas along the thrombosed cerebral veins. Streptococci, virulent to rabbits, were isolated from the thrombi.

The second case occurred in a boy of three years, in whom a double pneumonia and otitis were followed by marked cerebral symptoms and death. At the autopsy the pia mater was found to be edematous, the cerebrum normal, and the lateral sinus on the right side thrombosed. Pure cultures of the streptococcus pyogenes were found in the clot.

It was impossible to tell whether the sinus thrombosis was due to a general blood infection or to the otitis. As the lateral sinus on the side of the affected ear was not involved, the infection was probably of hematogenous origin.

Slagle, C. G. : Convulsions in Infants and Young Children. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 19. 1899.)

The most important predisposing cause of convulsions in young children is the natural instability of the nervous centres, characteristic of early life, and associated with the non-development of voluntary centres of the cortex; hence it is that age is a most important factor in the etiology of convulsions; and under two years is recognized as by far the most susceptible period. Of the many attacks of eclampsia which the author had wit-

nessed in young children during dentition, he could not remember one case where he could be sure that the eruption of the teeth was more than a predisposing cause of the spasm; and he could affirm the same of the so-often accused intestinal worms. These may often be contributory, as one only of several factors, inducing convulsions, and should not be entirely ignored.

Of all the causative agents in producing convulsions in young children, undoubtedly the food is the most common; probably, at least one-half of all convulsive attacks in infants and young children can be traced to this cause; either food wholly improper in quality, too much in quantity, or too frequently given. Bad hygienic conditions often contribute to this accident.

While infants fed with commercial foods, cow's milk, etc., are the most frequently attacked, mother's milk has precipitated violent convulsions in a healthy infant, within an hour after nursing, and which ceased when taken off the breast, only to return speedily when the breast milk was resumed. Another fruitful source of convulsions is to be found in rachitis and other forms of acute or chronic malnutrition. So also toxemia, either from microbic agency or from renal affections, is a well-recognized source of infantile convulsions.

When death occurs from general convulsions, it will be either from venous stasis in the brain—or effusion or hemorrhage on to that organ—or else by exhaustion from the prolonged attack. In laryngospasm, it may occur by apnea, or suffocation.

The author regards emetics as highly satisfactory and not dangerous in the treatment of convulsions due to digestive disturbance. Apomorphia grain $\frac{1}{2}$ to grain $\frac{1}{4}$ will serve a good purpose. Sodium bromid and chloral hydrate should be given *per rectum*. In some well chosen cases without cerebral congestion (!) morphin and atropin are advocated for hypodermic use.

Some cases of convulsions require depletion, others repletion, others evacuants only; others antispasmodics and calmants only, while still others demand refrigerants and revulsives. Much discrimination is demanded in the treatment of an affection, which, be it remembered, is always only a symptom—though often a dangerous one—of so many diverse conditions, either temporary—*i.e.*, functional—or permanent (organic).

Vaux, F. L. : Pleural Empyema in Children. (*The Montreal Medical Journal*. Vol. xxviii., No. 11.)

From a study of bacteriology we are in a position to deal intelligently with the subject of the etiology of empyema.

Three factors predominate. (a) Pneumonia, whether primary or secondary to the exanthemata. (b) Septic processes in any part of the body. (c) Tuberculosis. Pneumonia, or its sequence, pleuropneumonia is by far the most common cause of empyema in children. The relationship is clearly shown by the statistics of the Mt. Sinai Hospital, New York, where in a series of 288 cases, two-thirds had a direct history of pneumonia just previous to entering the hospital.

The most common causes due to septic infection are from neurotic or suppurative foci in bones, adjoining collections of pus which either break down into the pleural sac or set up an adjacent inflammation which ultimately involves the pleura. Tuberculosis is now generally recognized as a decided and very prevalent cause, yet, strange to say, unlike tuberculous processes in other portions of the body, its presence is most often determined by an absence of bacteriological proof. Inoculation of guinea pigs will often determine the point.

In some cases there is often a temptation to go back to the term idiopathic but such a step would be distinctly retrograde.

The predisposing causes of empyema may be summed up as follows: Race, climate, and habitation. The Jewish race, as seen in New York, is especially liable to the disease. The percentage of cases is undoubtedly larger near the sea board than inland, no doubt from the number of cases of bronchopneumonia. Bad hygiene tends to produce bronchopneumonia and subsequent pus formation.

Many of the cases of so-called "chronic pneumonias" are but neglected empyemas.

The diagnosis of empyema must rest upon the presence of pus in the aspirating syringe.

The peculiarities of the physical signs in childhood are mentioned. Flatness on percussion, next to aspiration is the most convincing proof of the presence of pus.

Treatment.—Evacuation by trocar and canula should be relegated to the past but pneumatic aspiration may be employed in cases of young infants, or to give temporary relief. With a seropurulent effusion it may be sufficient to effect a cure.

The choice of operation must always be a matter of preference but the following rules are given:

Exsect 1. In tubercular cases where secretion will go on for some time.

2. In long standing cases where the pleura is thickened.

3. In some cases of streptococcus infection.

4. As a routine measure where simple incision has been tried and failed.

Make a simple pleural incision :

1. In all cases in which it is absolutely necessary that shock, however slight, should be avoided.

2. Whenever time is the first consideration.

3. In the empyemata of healthy, well nourished children where aspiration shows seropurulent fluid only.

Thoracotomy may be done rapidly and quickly without injury to the bone but it necessitates the use of a drainage tube that may be compressed between the ribs and by pressing on the periosteum induce necrosis.

In the operation for exsection chloroform is used in minute quantities. It does not irritate the mucous membranes. In one case it was given to a boy of six months. It is seldom necessary to bring on surgical narcosis.

England, F. R. : Cerebro-Spinal Meningitis Complicating Measles. (*The Montreal Medical Journal.* Vol. xxviii., No. 11.)

A boy aged six years who had always been well, was attacked with a mild form of measles. Three days later the eruption was beginning to fade, the pulse and temperature had fallen to normal and he was feeling quite well, except for a slight bronchitis and a membranous rhinitis. The next day the patient was dull and inclined to dose. In the afternoon the child was seized with a severe convulsion. He was unconscious, the lips bluish, the face an ashy gray color, a general clonic twitching, more especially of the arms and face persisted. The pupils were equally contracted and reacted to light; the pulse was weak and rapid; the temperature was 100° F. Late the same night there was a second convulsion that was not so severe in character. The temperature rose to 103° F. The following morning the patient was restless. The temperature 105° F. The stupor had increased, but the pupils still reacted to light and remained equally contracted. There was some

rigidity of the muscles, but the head was not drawn back to any extent; there was neither squint nor any other sign of paralysis. Urine by catheter showed the specimen to be highly colored with a specific gravity of 1028, but without sugar, albumin or casts. One severe convulsion followed another and the patient died thirty-eight hours after the first convulsion. The temperature reached 109° F. before death. There was no vomiting throughout and no cutaneous eruption. The suppression of urine is worthy of note.

A culture taken from the nose gave a pure culture of diplococcus. Cultures from the noses of two children in the same family give the same organism with the ordinary staphylococci, etc. The organism answers in every respect to the meningococcus of Weichselbaum. Both scarlet fever and measles had been in the house for several weeks. The patient himself had not had scarlatina unless in such a mild form as to escape detection. This was quite possible, however, as several of the children had been going about without the disease being discovered until the desquamation began. Four of these children developed measles. Thus the possibility of the onset of scarlatina had to be considered, but the symptoms did not support such a diagnosis. Uremia was excluded by the result of the urinalysis. The lungs at no time showed signs of consolidation. As there were cases of cerebro-spinal meningitis in this city this case might be considered as of that type but the presence of the meningococcus in the nose was the probable though uncommon cause.

An autopsy could not be obtained. Two of the children who had measles developed a membranous rhinitis which persisted for three weeks in spite of treatment. The cultures showed the meningococcus and the staphylococcus.

The author has not been able to learn of cases of cerebro-spinal meningitis, scarlatina or measles.

Smith, F. J.: Traumatism Followed by Empyema.
(*The Clinical Journal.* No. 364. 1899.)

A female child, aged ten, who was rather weak, was knocked down and run over. The chest was so painful that it was a week after the accident before it could be examined. The left side was dull and it was thought that there might be an effusion of blood; the subsequent history proved this to be incorrect.

The pain was intense. On exploration with a needle pus was found in the pleural cavity. The question was raised as to whether an injury to the mouth received at the time of the accident had anything to do with the empyema. As a matter of experience possibly not 1 per cent. of empyemata have even this apparent cause for their suppurative character. As there was no external injury in the chest it might at first sight seem a little difficult to call the empyema a septic one; but, inasmuch as that is the usual fate of nine out of ten empyemata, *viz.*: that we cannot account for their origins, all one can say is that the traumatism acted as a depressant to the tissues and the ordinary causes of inflammation within the thorax were able to act with greater vigor so that it is not necessary to regard the wound of the mouth as a cause.

It is a question whether suppuration associated with tubercle is not a pretty definite evidence of septic microorganism getting into small tubercular foci and thus reaching the pleura. The clue to internal suppuration lies in the fact that microbes require pathways of less than microscopic proportions to enable them to get into a given district.

Taylor, B. M.: A Peculiar Case of Pernicious Malarial Infection. (*Medical Record.* Vol. lvi., No. 23.)

A boy of twelve years of age was thought to have "brain fever." He had become ill very suddenly and was wildly delirious. His temperature was 97° F., pulse 72 and respiration 12. There was no vomiting. The patient made no attempt to walk or move. The second day of the illness the temperature was still low, 96° F. The pupils were not contracted but reacted sluggishly. There was incontinence of urine. An examination of the blood showed the presence of malarial plasmodia.

Quinin was given hypodermatically, 20 grains being administered every three hours. The following day the patient's temperature was 98.5° F., pulse 76, respiration 16. His mind was clear and he was able to swallow water. He was not able to remember anything that had happened during the illness.

The quinin was continued in 5 grain doses every three hours for several days. An examination was then made and showed an absence of plasmodia. The patient made a complete recovery. The treatment was heroic but seemed justified by the boy's condition. (The sulphate of quinin, made soluble by sulphuric acid, was used.

Larrabee, F. W.: A Case of Funnel Chest. (*The Philadelphia Medical Journal*. Vol. iv., No. 19. 1899.)

R. M., age sixteen; height, 5 feet $5\frac{3}{4}$ inches; weight, $121\frac{1}{2}$ pounds; rugged and otherwise well formed except a slight stoop; muscles firm and well developed; and otherwise than deformity is the picture of good physical development.

The right half of the thorax is full and rounded, but the left half is somewhat flattened. The depression here is near the middle line including the lower two-thirds of the sternum, and a little more than half of the concavity is to right side of the median line. It begins at the junction of the manubrium and gladiolus and reaches its greatest depth at the junction of the gladiolus and ensiform cartilage, the latter being somewhat bent forward. The greatest width of the depression is opposite the fifth interspace. The circumferences are as follows: axillary, $32\frac{1}{4}$ inches; nipple, 31 inches; depression, 30 inches. The diameters are: antero-posterior, right nipple, $7\frac{1}{2}$ inches; left, $7\frac{1}{4}$; depression, $6\frac{1}{4}$ inches. Transverse diameter at the level of the depression, $9\frac{1}{2}$ inches. The length of the sternum is $7\frac{1}{4}$ inches. The greatest depth of the depression is $1\frac{1}{4}$ inches. The chest expansion at the nipple line is $2\frac{1}{4}$ inches. The length of the depression is $5\frac{1}{2}$ inches and the width $3\frac{1}{2}$ inches.

The lower lung borders are normal and nothing abnormal is found on physical exploration of the lungs themselves. The heart is slightly elevated, and the apex beat is best heard 1 inch internal to and $\frac{1}{2}$ inch below the nipple.

This boy has always lived on a farm and has engaged in all the labors and sports incident to such a life. He has never had any serious sickness until this last winter when he had an attack of pneumonia. During this sickness the heart was markedly weakened, but at present the patient is as well as ever.

No such deformity exists in either parent, nor can it be referred to any pre-natal or post-natal injury. There are no bony deformities in any other part of the body.

Villy, F.: Vomiting and Cardiac Failure in Connection with Diphtheria. (*The Medical Chronicle, Third Series*. Vol. i., No. 6.

The author offers the following:

1. That the great majority of diphtheria patients at one time or another exhibit cardiac irregularity and other signs of cardiac

weakness which may be referred to muscular failure, the incidence of these signs being much greater than that of definite paralyses.

2. That one of these signs, irregularity, occurs as a rule earlier in the disease than definite paralyses do.

3. That vomiting and cardiac failure have their onset as a rule before that of definite paralyses.

4. That vomiting occurs as a separate entity which may exist along with little or no sign of cardiac failure, but yet is generally followed by failure.

5. That cardiac dilatation occurs not uncommonly without vomiting, and may be readily caused by slight exertions of the patient.

6. That recovery from cardiac failure is not followed as a rule by any sustained and marked tachycardia.

7. That tachycardia is a persistent feature of certain cases of diphtheria, and may resemble the definite paralyses in its time of onset.

8. That in cases of very extensive paralyses about the pharynx the heart only shows a gradual failure which there is no reason to ascribe to the nervous lesion, yet it is probable that in these paralyses some part of the vagus nerve is involved.

It may be said that the great majority of fatal cases of diphtheria, excluding those who die from laryngeal obstruction, are fatal because the heart fails. Except in mild cases some signs of cardiac weakness are present even in the first few days of the disease, and comprise an alteration of the first sound, sometimes a slight systolic murmur audible at the apex or other points, sometimes slight irregularity of action, rarely a slight dilatation of the organ with displacement of the apex beat to or beyond the nipple line. The heart commonly acts rapidly, even when the temperature is normal or subnormal; on the other hand it may be slowed, and such cases generally soon end if the sign is very marked. If the case progresses favorably the heart sounds gradually improve, but as a rule, some trace of weakness of the first sound persists for several weeks, the duration of such persistence varying with the severity of each case.

If a mild case is examined at about the seventh day of disease it will probably be found that the action is regular though a trifle more rapid than it should be, the first sound will

be a little short and sharp in character and the second accentuated, especially over the pulmonary area. As a rule the action will be found to become irregular to some extent by the end of the third week; such irregularity may be exceedingly slight, though distinctly recognizable. As a rule, however, the irregularity amounts to little more than a variation of rapidity or power in successive series of beats. The heart may become dilated so that the apex beat is in the nipple line or to the left of that. There may be with this an apical systolic murmur of the characters of a mitral regurgitant murmur. There may be also the murmurs that resemble hemic murmurs. They are capricious and are systolic. The second sound may be accentuated at the pulmonary area.

Unless the heart is more seriously affected than is common in mild cases, these signs will gradually subside. The heart will become normal in size, the first sound will regain its tone and nothing will remain after about six weeks from the onset of the disease except perhaps a slight systolic murmur at the apex or pulmonary area and probably a slightly accentuated second sound at this latter point.

Cardiac failure not associated with vomiting generally occurs in the disease before the fourteenth day and not associated with paralysis.

Cardiac failure may occur without exciting cause or following exercise, or from the strain which diaphragmatic paralysis throws on the organ. It may follow obstinate vomiting.

It is common for the pulse rate to be markedly increased in the early stages, and at other periods it is common to a certain degree and for short periods.

TABLE I.

The results of observations on 177 cases of uncomplicated diphtheria with regard to the presence or absence of cardiac irregularity, and to the date of its onset, are shown here:

Ages.	No. of Cases.	Regular.	Irregular.	Percentage incidence of Irregularity.	Average date of Onset.
1, 2, 3, 4,	.. 67	.. 5	.. 62	.. 92.5	.. —
5, 6, 7, 8, 9,	.. 63	.. 1	.. 62	.. 98.4	.. —
10, 11, 12, 13, 14,	.. 22	.. 1	.. 21	.. 95.4	.. —
15, 16, 17, 18, 19,	.. 9	.. 2	.. 7	.. 77.7	.. —
20, 21, etc.	.. 16	.. 13	.. 3	.. 18.7	.. —
Total.....	177	.. 22	.. 155	.. 87.5	.. 17.7 days

Among these cases paralysis was present in 33 (18.6 p. c.): of these cases, 31 (93.93 p. c.) presented cardiac irregularity, while 2 (6.05 p. c.) did not. The date of onset of irregularity was three days at the lowest and fifty-seven days at the highest. The corresponding dates in the case of paralysis were 10 and 56; the average date of onset being 27.5 days.

These being the figures obtained with regard to cardiac irregularity, they may be contrasted with the next table, giving the numbers and percentages of cases of paralysis at various ages from an analysis of 1,000 cases. Cases of cardiac failure associated with vomiting have been excluded unless they were subjects of some other definite paralysis.

TABLE II.

The age incidence and date of onset of paralysis, from 1,000 cases:

Ages.	No. of Cases.	Paralysis.		Percentage of Paralysis Cases.	Date. of Onset.
		Absent	Present.		
1, 2, 3, 4, ..	378 ..	324 ..	54 ..	14.28 ..	—
5, 6, 7, 8, 9, ..	365 ..	281 ..	84 ..	22.9 ..	—
10, 11, 12, 13, 14, ..	120 ..	105 ..	15 ..	12.5 ..	—
15, 16, 17, 18, 19, ..	52 ..	49 ..	4 ..	7.69 ..	—
20, 21, etc. ..	85 ..	83 ..	6 ..	7.22 ..	—
Total.....	1,000	838	162	16.2	28.56

By a comparison of these two tables it will be seen that while in both the percentage of cases of paralysis on the total number and date of its onset are not dissimilar, the percentage of cases of cardiac irregularity is much greater than that of cases of paralysis, and its date of onset is very distinctly earlier. A comparison of age incidence shows no striking dissimilarities. To show these distinctions between the cardiac conditions and the paralyzes, the one striking sign of irregularity has been selected.

By a similar study of 50 cases of vomiting followed by cardiac failure and death, it is readily shown that the date of onset of this vomiting is very distinctly anterior to that of paralysis. Among these 50 cases the day of onset of vomiting varied from the third to the sixteenth. In only two was there paralysis (4 p.c.): this is quite at variance with the usual statement that paralyzed patients are more liable to heart failure than others. Contrasted with the average date of the onset of paralysis, as given in Table II., the date of onset of vomiting was on the average

7.92 days, or more than twenty days before the usual onset of paralysis.

After giving the histories of a number of cases and careful pathological reports bearing on the premises laid down he states that from the clinical evidence it may be deduced that:

1. Signs of heart failure are much more common than are paralyzes in other parts, and have an earlier date of onset.
2. They are such as may be ascribed to muscular failure.
3. When vomiting occurs, heart failure generally follows.
4. The date of onset of vomiting and heart failure is distinctly anterior to that of paralysis in other parts.

From the pathological data it appears that:

1. Evidence of degeneration and inflammation of the mucous membrane of the stomach is constantly present, and is often accompanied by hemorrhages.
2. The heart muscle is constantly found to be in a degenerated condition; hemorrhages are commonly present.

The combined evidence obtained from both sources points to the cause of vomiting and heart failure as lying in changes of the gastric mucous membrane and of the heart muscle, nerve lesions probably taking but little part in the production of the phenomena the investigation of which forms the subject of the paper. Vomiting, by the strain it throws upon the heart, and possibly through a reflex nervous mechanism, may produce heart failure.

Taylor, J. M. : Nervous Manifestations in the Diseases of Children. (*International Medical Magazine.* Vol. ix., No. 1.)

Two influences stand prominent in forming the lessened resistance of infancy and childhood, cellular instability and the incomplete development of the nervous system. Along with commonly recurring symptoms which point to obvious disturbances of the digestive and respiratory or other organs there may or there may not be evidences of a neurosis. In children of a good heredity, wholesome upbringing, of a vigorous constitution and of sound cellular stability they are fair indices of the gravity and extent of the disorder. If, on the contrary, they appear in children of neurotic inheritance or vicious environment, or both, then we may assume that the disease is exerting serious influence upon an irritable organism and the outcome of the attack is uncertain because of the latent weakness that is revealed. The

neurotic phenomena, in this class of cases, are apt to recur on slight evidence of disease.

The fatigue states, merging as they do into exhaustion neuroses deserve further attention. The unstable state of equilibrium in the cerebrospinal cells in the young child renders exaggerations of motion even more common than those of sensation.

Spasmodic states call for absolute rest of body and mind and the prompt removal of whatever source of irritation can be found to exist.

The conditions producing alterations in sensibility are rare in infancy, excepting those producing tendernesses, such as rheumatism, neuritis, the inflammations, as of scurvy, rickets or Pott's disease, or the simpler problems, as injuries or abscess.

Williams, F. H. : Some of the Ways in Which X-Rays Assist in Medical Diagnosis. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 20. 1899.)

In a paper read before the American Medical Association, Williams gave the advantages of the X-rays for diagnostic purposes. He urged the more general use of X-ray examinations for infants and children. These examinations may be made in young patients. Not only the thorax but the head and the various organs in the abdomen may be more easily examined than in adults. Infants may be examined when asleep and it is not necessary to excite a child by the removal of the clothing.

SURGERY.

Lilienthal, H. : A Case of Purulent Pericarditis Successfully Opened and Drained. (*The Medical News.* Vol. lxxv., No. 22.)

The case was shown at the Section on Surgery of the New York Academy of Medicine. The patient was a Russian boy fifteen years of age, who on July 6, 1899, was admitted to the hospital. He had at the time the symptoms of a trilobar pneumonia. Two of the lobes of the right lung and one of the lobes of his left lung were consolidated. His temperature was 104.5° F. when he came into the hospital, and it rose to a 105.6° F. after a day or two. There was a steady progression of the symptoms. On July 10th his respirations were 66, on July 11th, 68. Pneumococci could be found in the sputum, but no

tubercular bacilli were present. Prostration was so great that the patient could not urinate and the catheter had to be used. On the 13th the respiration rose to 72, on the 14th a pericardial friction sound was heard. No increase of heart dulness could be demonstrated for two days, however, then it was noted that the sternum was flat from the notch to the ensiform. Streptococci were now found in the sputum, but tubercle bacilli were absent. After a remission of symptoms for more than ten days the pericardial friction sound returned. Ten days later his condition had become very miserable. His pulse rose to 145 and was weak and irregular. On the 14th of August he was aspirated for the pericarditis and 18½ ounces of pus were removed. It was found to contain a pure culture of the pneumococcus. Considerable cyanosis had developed, and as the patient was very nervous the question of anesthesia for the operation which was evidently indicated was a very serious one. It was decided that ether could not be given because of the struggling that might ensue. Chloroform it was feared might induce syncope in the weakened condition of the heart. Local anesthesia was decided on and as the patient was very fearful he was not told that an operation was to be done, but made to understand that more thorough aspiration was to be tried. The local anesthetic used was eucain B. His face was screened off by a towel so that he might not see the site of the operation.

The patient was given five minims of Magendie's solution ten minutes before the operation. Altogether one drachm of eucain B was used to produce the local anesthesia. The incision was made from the third to fifth intercostal space, about a quarter an inch from the sternum and then was given the form of an L by an incision towards the nipple. Three quarters of an inch of the costal cartilages were resected. The interspaces were wide and gave plenty of room for the surgical manipulations. When the pericardium was reached it proved to be extremely thick. Tissues at least a half inch in thickness had to be cut through. Immediately after penetration there was a tremendous gush of pus, at every little cough there would be another gush of pus. Several times when it was thought that all the purulent material had been evacuated movements of respiration or of coughing would expel more. It was estimated at the time by one of the assistants that thirty-five to forty ounces of pus were removed. Probably the amount was nearer fifty or sixty ounces.

A drainage-tube was tried, but it impinged upon the heart and it was feared that the friction might cause erosion or reflex nervous trouble in an already weakened organ and so the wound was left open, no artificial drainage being employed. Irrigation was employed a number of times and the normal salt solution used for this purpose seemed to become pocketed in the pericardial folds and gushed out on cough or respiratory efforts, as the pus had done. The patient three months after the operation was in excellent general condition. Synechiæ had formed but the youth of the patient will probably lead to the gradual tearing loose of these as he grows in strength and that ultimately he will be left with an untrammelled heart.

Jottkowitz, Paul: Total Resection of the Diaphysis of the Long Bones in Cases of Acute Infectious Osteomyelitis. (*Deutsche Zeitschrift f. Chirurgie.* B. lii., H. 1 u. 2. *Philadelphia Medical Journal.* Vol. iv., No. 25.)

The patient, a three-years-old child, had an acute multiple osteomyelitis with the formation of abscesses and fistula. Operations, consisting in opening up the fistula and abscesses and in limited removal of bone, failed to effect a cure, therefore total resection of the diaphysis was decided upon. An incision was made in the lower third of the outer side of the thigh and the femur sawed through with a wire saw. The bone was easily pulled down because of the thickened periosteum being already separated from the bone by the disease. Although the periosteum was thickened it was still soft, except for a short distance just above the knee where calcification had begun. The wound healed by granulation and suppuration stopped. The child began to walk ten weeks after the operation, at which time there was $3\frac{1}{2}$ cm. shortening. A Röntgen ray photograph five months after the operation showed a good strong deposit of bone along the line of the old femur.

The leg steadily improved until one and a half years after the operation. There was only 1 cm. shortening.

Wilcox, S. F.: A Case of Subcutaneous Craniotomy. (*Medical Record.* Vol. lvi., No. 27.)

The Gigli saw is described by Keen as "a bit of roughened steel wire about 35 cm. long and 0.5 mm. or more in diameter, with a loop at each end. The method of using the saw is to make two or more trephine openings, separate the dura from the skull, . . . draw the saw under the bridge, . . .

attach a handle to each end of the saw, and cut outward." The principle of this instrument is the same as the old fashioned chain saw, but being so much lighter, thinner, and stiffer, with no liability to kink or clog, it is a much better and more adaptable instrument.

A girl fourteen years of age, was well grown and developed physically, but very backward mentally. She had a dull, sleepy look with half-closed eyes, and her mental non-development was manifested by her imperfect speech, her limited acquirements, and some muscular incoordination. Her mother stated that, in spite of the child's sleepy look, she had never seen her asleep; and an examination of the skull with an X-ray machine indicated unusual thickness of the bone for a child of that age. It was thought by the neurologists who were consulted that undue pressure was being made upon the brain by the over-thick skull, or at least that expansion and development of the organ were inhibited, and the operation was undertaken with the object of relieving the pressure, and giving an opportunity for the brain to expand. The whole operation consisted in first removing quite a large plate of bone from over the fissure of Rolando with the chisel, and then loosening up another large plate without cutting the scalp along the line of section through the bone. The latter portion of the operation was accomplished by first making two very small openings through the scalp and skull at some distance from the place where the plate of bone had been removed: then the dural separator was passed from one trephined opening to the other, and the saw pushed along its groove under the bridge of bone; the handles were attached and the wire was held out as straight as possible as the bone was cut through. As soon as this was done, the saw was pulled out without cutting the bridge of soft tissues. The instrument was then re-introduced so as to make the new line of section join the opening left by the removal of the original plate of bone. Thus an irregular quadrilateral piece of bone was loosened up, and the expansion of the brain promptly pushed it from within outward. In order not to produce a condition which could be similar to a depressed fracture, the saw was drawn sideways as it cut through the bone, thus bevelling the edges, so that, when pressure was made externally, the raised piece could only be pressed down into its original position. The effect of the operation thus far has been good; although, of course, no judgment

can be formed as to the permanent result in so short a period. The child now opens her eyes wide; the sleepy look is gone, and she sleeps naturally.

With the Gigli saw a piece or several pieces of bone may be loosened without cutting the scalp except to make very small openings sufficient to admit of placing the trephine on the skull. The attachments of the skull to the scalp and dura are not torn off, and there can hardly be a limit to the amount of bone loosened; and finally with aseptic precautions the operation is almost entirely free from danger. As to the results which may be accomplished, no one can tell as yet, but it seems that a new field may be opened up to the neurologist through the invention of this simple instrument.

Hibbs, R. A.: *A Study of Shortening of the Tibia and Femur in Fifty Cases of Tuberculous Disease of the Hip Joint.* (*The New York Medical Journal.* Vol. lxx., No. 25. 1899.)

It does not always follow that suppuration is evidence of the destruction of bone, as in many cases in which it is profuse the destruction of bone is slight, while in others that have no suppuration it is considerable. Of 106 cases of hip-joint disease previously reported by the writer, the greatest amount of shortening was found, as a rule, in those cases of the non-suppurating variety.

The causes of shortening may be considered as of two varieties. First, the direct, due to the destruction of tissue; second, the indirect, that due to a trophoneurotic affection which causes diminution in thickness as well as length of the bones, and the interference with the growth of the limb by the impairment of function. The first of these causes would be effective only while the inflammatory process was active, and the same would probably be true of the second, so far as the trophoneurotic disturbances were concerned. Impairment of function and interference with growth incident to it will continue until growth has been attained, so that the consideration of cases of this class has less value than the cases that have attained their growth.

The 50 cases observed were in the New York Orthopedic Hospital. Their treatment was by the traction method as applied by the long traction hip splint, and the greater part of the time as out-patients.

The measurements of the femur were taken from the anterior

superior spine of the ilium to the line of articulation between the femur and the tibia on the inner side of the knee-joint, and the tibia from this point to the internal malleolus.

Shortening of both the tibia and femur was present in a large percentage of the cases. There were 13 cases in which the disease had existed from seven to fourteen years, the ages of the patients varying from ten to twenty-five years.

The average shortening of the tibia was .70 of an inch, while that of the femur was 1.47 inch. The knowledge of this proportion, whatever it may be in any case, furnishes a means by which a fairly correct estimate may be placed upon the causes of shortening as to their comparative responsibility for it.

It is obvious that the destruction of tissue can play no part in the cause of shortening of the tibia, although one half of the entire shortening of the limb is represented by that bone in these cases. If the indirect causes of shortening, the trophoneurotic affection caused by the disease, and the interference of growth by impairment of function, produce this effect upon the tibia, it is fair to assume that the femur will also be affected in this way to as great a degree, which fact suggests that destruction of tissue, the direct cause of shortening, is of less importance than the indirect causes, probably producing not more than one-third of the total amount.

Ely, L. W. : The Early Diagnosis of Tuberculous Joint Disease. (*Medical Record.* Vol. lvi., No. 25.)

The report is based upon 453 cases of tuberculous joint disease. Of these cases a positive family history of tuberculosis was obtained in 68, a negative in 309, and in 76 the disease is not mentioned. The 453 cases showed the following distribution, spine 210, hip 155, knee 51, ankle 24, elbow 6, wrist 3, shoulder 4.

The first characteristic of these cases is their gradual development. A history of trauma is generally given but it is of little use except to exclude, by examination, fracture or dislocation.

Pain and stiffness are two important symptoms. The pain is not in a spot but over a region. It is worse on motion and is apt to come in paroxysms at night. The stiffness in the morning is well known.

A patient should always be stripped for examination. In the limbs a guide is present in the limb of the opposite side.

With hip joint disease no one attitude is characteristic of the disease but there should be but two sources of doubt in diagnosis, namely, contusion and bending of the neck of the femur. The symptoms of a contusion follow immediately on an injury and disappear in a few days, under proper treatment. Bending of the neck of the femur is essentially a disease of adolescence, it is rare, is marked by shortening of an inch or so, and is accompanied by limitation of abduction only.

The knee shows, in tuberculosis, a doughy swelling and there is atrophy of the thigh and leg, symptoms that are not usually seen in a simple synovitis.

In disease of the spine an early diagnosis is often difficult and sometimes impossible until deformity has taken place. It is most important because the deformity, when once present can never be removed. The guide possessed in a limb, namely, the sound joint of the other side, is here of course absent.

With the exception of stiffness the subjective symptoms are not usually referred to the spine. The irritation of the spinal nerves will cause pain in the chest, abdomen or other part.

The usual symptomatology is given and the author states that no results can be obtained by poking the spinous processes to find tender or painful spots. Cutaneous sensitiveness does not exist in tuberculosis of the spine. Rachitic curvature will be accompanied by other signs of rachitis and not by muscular spasm, and will affect the entire spine with a long gradual convexity.

Ordinary wry neck can be recognized by its acute onset, its rheumatic or tonsillar history, and by its tendency to affect a single muscle, especially the sternomastoid. Caries affects all the muscles in the vicinity of the disease. In a few cases the subsequent history will be the only means of making a positive diagnosis. In any case where doubt exists the diagnosis should be withheld. A diagnosis of "growing pains" may be disastrous and nothing is lost by a short delay if a child is kept quiet.

Joachimsthal: Coxa Vara Traumatica Infantum. (*Archiv f. Klinische Chirurgie.* B. lx., H. 1.)

Coxa vara infantum—a downward bending of the neck of the femur—may be caused in more than one way. Lauenstein found in one of his cases at the autopsy the characteristic evidences of rickets. Kredel, Kirmisson, Mouchet and Aubion

speak of a rare congenital variety of coxa vara, while Kocher assumes a juvenile form of osteomalacia, basing this assertion on the histological appearance of his cases. The curving in his cases seemed to take place at the line of the epiphysis, which fact was explained by Hofmeister as due to a lack of resistance at that place. Sprengel operated on two young men, who gave histories of some slight traumatism and on examining the specimens removed from these cases he found changes resembling closely the conditions described and depicted by Kocher, but on closer examination these were found to be due to traumatic separation of the head of the femur along the epiphyseal line, which had been followed by union with considerable deformity. The resulting interference with the function of the joint necessitated operation.

These two cases made it probable that in a number of cases of supposed coxa vara statica—the variety supposed to have been caused by the action of the weight of the body in addition to a predisposing cause—that some of these cases were in reality of traumatic origin. The author's own case points in that same direction. A girl five and a half years of age, while jumping through a hoop, suddenly complained of severe pain in the right hip, but was able to go up two flights of stairs. This pain disappeared in the course of about two days, but there remained a permanent limp. Examination revealed no sign of rickets, the right leg was shorter than the left, although the distance between the trochanter and external malleolus was the same on both sides. The muscles of the lower extremity were somewhat atrophic, while the function of the joint was not interfered with, except that an attempt at adduction caused a sideward tilting of the pelvis. Examination with the X-ray showed epiphyseal separation of the head of the femur, followed by union with deformity. This deformity consisted in a downward displacement of the head of the femur. At the same time the head had described the arc of a circle, the centre of which lay at the epiphyseal line, so that the middle of its articular surface pointed downward and inward, instead of upward and inward. The head was therefore in the position of extreme abduction; this fact explains the above mentioned inability to further abduct the thigh.

HYGIENE AND THERAPEUTICS.

Eastes, G. L.: *The Pathology of Milk.* (*British Medical Journal.* No. 2028. 1899.)

In normal cow's milk there is always a slight leucocytosis. The leucocytes correspond to the polymorphonuclear neutrophils of human blood. The leucocytes may be marked during the first week of lactation, especially after the first pregnancy, after that period they decrease in number. During the first week of lactation the leucocytes are accompanied by colostrum corpuscles. In any milk, therefore, in which the leucocytosis is marked it is essential to examine it for colostrum corpuscles. These are present in the largest number in the cream, as containing fat, they rise to the surface during centrifugalizing. The presence of an excess of leucocytes in the so-called "mucus" constitutes "muco" pus and is a sign of the existence of an inflammatory lesion of the ducts of the udder.

The streptococcus is sometimes found in apparently normal milk but when present it is in small numbers. When pus, however, is present there is no need to proceed to cultivation to determine the streptococcus.

When blood is found in milk usually indicates the presence of an active inflammatory lesion, but not always, as it may be present in very early lactation, due to physical causes.

The bacillus tuberculosis found in milk is usually shorter than that observed in human sputum. The presence of tubercle bacilli in milk is an absolute indication of the existence of a tuberculous lesion of the udder. The animal may be tuberculous, but till the udder contains breaking-down tubercles no bacilli are passed in the milk.

Some of the other microorganisms found in milk are the staphylococcus pyogenes aureus, the Klebs-Loeffler bacillus, and the bacterium coli. The streptococcus may cause symptoms of poisoning as was shown in the examination of a sample of milk where it was the only microorganism present and no irritant poison was detected. The milk produced vomiting and collapse of a family of five children. There is not the slightest doubt that unboiled milk containing streptococci is responsible for some cases of infantile diarrhea and mortality. One hundred and eighty-six specimens of milk were examined. Tubercle bacilli were found in 11. In 47 there was pus and

"muco" pus was present in 77. Streptococci were found in 106 cases.

The percentages in mixed milk were about as follow: 5.3 per cent. contained tubercle bacilli; 30 per cent. contained pus; 48.7 per cent. contained "muco" pus. Streptococci were found in 75.2 per cent. of the samples.

Milk which contains pus or "muco" pus and streptococci is unfit for human food. No farmer should be allowed to sell such milk.

Milk that is derived from pasture fed cows is less likely to be contaminated than is the milk from cows that are stall fed.

Milk that contains tubercle bacilli should be condemned as unfit for food in any form, butter, cheese, etc.

Jemma: Researches on the Pathogenic Action of the Microbes in Milk, Designated Casein Ferments or Proteolytic Bacteria. (*Rev. Mens. des. Mal. de l'Enf.* Vol. xviii., No. 1.)

After reviewing the literature the writer made experiments with milk, and found that the casein is most frequently acted upon by bacteria belonging to the group of bacillus subtilis, and that it has no pathogenic action upon animals. Another group of bacteria present is that of bacillus mesentericus vulgatus, some of which may be pathogenic when taken into the gastro-intestinal tract in very large numbers. Injected into the blood, the peritoneum, or the skin, they are harmless. The third variety of bacteria which acts upon the casein is the bacillus butyricus, which is hardly ever pathogenic. In one case a very large quantity (12 c.cm.) of infected milk caused the death of a guinea pig twenty-four hours after an intra-peritoneal injection.

Glénard, M. F.: The Treatment of Typhoid Fever in Children With Cold Baths. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 1.)

Typhoid fever in children is a grave disease, with a mortality of 15 per cent. with ordinary methods of treatment. The systematic use of cold baths has reduced the mortality to 2.5 per cent. while a mixed treatment of medication and bathing gives a mortality of 11 per cent. This mixed treatment does not affect the uncertainty of the prognosis, the development of complications and the long duration and convalescence. On the other hand, the cold bath treatment reduces the complications to a minimum and shortens the convalescence. Collapse follow-

ing a bath was never seen. With the systematic use of the cold bath, typhoid fever in children becomes a very benign disease, but under no other form of treatment can it be considered so.

Chapman, C. W. : Heart Disease in Childhood and Youth.
(*The Clinical Journal*, No. 364. 1899.)

It is a very great mistake to prescribe digitalis simply because a bruit has been discovered, and more serious still to increase the dose of the drug in proportion to the loudness of the murmur. When the heart is acting well, and good compensation has been established, as shown not only by the position of the apex beat, but also by the absence of signs of backward pressure in the lungs, liver, etc., drugs that would further stimulate the heart are positively harmful. If the physical signs are not associated with any evidence of failure of the cardiac chambers, the effect of routine treatment by digitalis upon the heart would be to stimulate the myocardium to increased effort; the endeavor of the right ventricle to force the blood through the lungs more rapidly would probably lead to hemorrhage from the pulmonary capillaries, and the left auricle as well as the right ventricle would probably further dilate.

The treatment should be directed to the maintenance of the existing state of affairs by judicious advice as to the manner of life to be led, and by attention to the general health. The heart should be carefully examined at intervals, especially when any signs of downward progress—such as increased or increasing dilatation, liver and lung engorgement—begin to make their appearance.

If, however, these symptoms show themselves now is the time, of all others, that drugs of the digitalis group assert their value and form a necessary element in the treatment.

As a preliminary to the use of digitalis, a free purgation is very useful; and leeches to the precordium, or even venesection, may with advantage be resorted to when there is cyanosis. The effect of these remedies upon the heart and circulation should be carefully watched. When large doses of digitalis are called for it is well to restrict the patient to the recumbent position.

Mercury, in one form or another, is as valuable for children with heart disease as for adults. When a rapid relief to the liver is required, calomel in small and frequently repeated doses,

until the bowels have been freely acted upon, is a very useful way of administering the remedy; at other times mercury with chalk answers the purpose.

The digestive organs will require frequent attention, for gastrointestinal troubles are commonly met with in heart disease, especially in the later stages.

Nux-vomica is a very valuable drug, but it must be given in small doses and under watchful medical supervision only. When the drug is required for a lengthened period it is advisable to leave it off for a few days every now and then.

Alcohol is, at times, a useful remedy in some stages of heart disease, but it is as a rule, not only unnecessary, but positively harmful.

Belladonna, applied in the form of a liniment, is an agent for the relief of cardiac pain.

Nauheim baths may be used in the rare cases of arteriosclerosis in children—but these cases are seldom seen.

The exercises will be found useful in appropriate cases. It may be noted that the use of exercises is no new revelation, their value having been recognized for many years.

Smith, F. J. : Arsenic in Chorea. (*The Clinical Journal.* No. 364. 1899.)

Smith questioned the value of arsenic in the treatment of chorea in the following remarks at a clinical lecture:

Arsenic is a time-honored remedy in chorea. For those who wish to push it, arsenic can be administered hypodermically in doses which are beyond the reach of the stomach to deal with. By that is meant doses equivalent to a drachm or one and a half drachms of Fowler's solution in the twenty-four hours. Some years ago he treated a series of cases of chorea with hypodermic injections of large doses of arsenic, with the view of determining whether arsenic had any specific influence over chorea, and the result of the cases thus treated was to convince him most thoroughly that it had no more effect on the chorea than good food and rest in bed had.

Hall, Harry O. : The Etiology of Scarlet Fever. (*Medical Record.* Vol. lvi., No. 20. 1899.)

In connection with his observations made at the library of the Surgeon General's office the author learned:

I. That, while scarlet fever occurs in epidemic form in all countries where cow's milk forms a staple article of food, es-

pecially among children, it does not occur in countries where cow's milk is not used as a food or where children are raised on mother's milk only.

II. That in Japan and China, where cow's milk is not used as a food, scarlet fever is unknown or very rare. (In a list of 310 different countries, cities, and towns in which epidemics of scarlet fever had occurred, Japan, China, and Corea do not appear.)

III. That in India, where cow's milk is used as a food, but where, as in Japan, children are nursed until three, four, and even six years of age, scarlet fever is rare, if not unknown.

IV. That in countries where goat's milk and ass's milk are used as a food scarlet fever is unknown.

V. That epidemics of scarlet fever in London and elsewhere have been traced directly to the use of milk from certain cows affected with the teat-and-udder disease, and that milk had not been infected by coming in contact with the disease in man.

VI. That certain diseases in the lower animals are coexistent with or precede or follow similar epidemics in the human race.

So far as he is aware no one has ever heretofore connected the exemption from scarlet fever to the non-use of milk as a food.

An epidemic of scarlet fever in London was traced to a dairy where the cows were found to have a vesicular disease of the teats and udders. The pus from these vesicles was injected into healthy calves and they developed similar vesicles with high fever, sore throat, diarrhea, running at the nose and all the symptoms of scarlet fever. It was regarded as a specific disease capable of being communicated to healthy cows by direct inoculation from the diseased animals.

From the absence of cows in Japan and the non-use of cow's milk may be deducted the fact that scarlet fever is seldom seen.

In an epidemic of scarlatina occurring in Wimbleton it was found that out of five hundred and forty-five cases of the disease four hundred and ninety-three occurred in a population of about 1,500 people using milk from a certain suspected dairy, while there were but fifty-two cases out of a population of 15,000 persons using milk from other dairies.

After a study of the literature of the diseases of the cow the author expresses belief that cow's milk is the source of scarlet fever.

McVail, J. C. : Municipal Duty as to the Prevention of Tuberculosis. (*The Scottish Medical and Surgical Journal.* Vol. vi., No. 1.)

The cow is dangerous much more as a milk giver than as a meat giver, and the risk from milk is especially great in infants and children, though no doubt this risk has been greatly exaggerated. Milk heated to 170° F. is not unpleasant to the palate and it is safe. Short of compulsory sterilization, which the author advocates, he believes that the tubercle bacillus should be looked for in the milk supply and if it is found the dealer should be prosecuted for the sale of unwholesome food.

For the prevention of tuberculosis it is also necessary to consider the influence of bright sunshine, fresh air and good food.

Brown, J. J. G. : Notes on the Treatment of Diseases of the Nervous System. (*The Scottish Medical and Surgical Journal.* Vol. vi., No. 1.)

In acute anterior poliomyelitis no electrical treatment will do good in the case of those cells and fibres which have undergone complete degeneration, nor in that of the muscles the trophic centres of which are thus destroyed. But there are always cells and nerve fibres in which, though their function is affected, the process has not gone to its full length. In these and in the corresponding muscles partial if not complete recovery is still possible under suitable treatment. Electrical stimulation is of considerable value but should not be commenced before the third week. It is best to employ galvanism in the first instance, indeed in many cases galvanism is the only form of electricity that will cause contraction of the muscles. Later in the case faradism does well. With children allow them to become accustomed to the application of the electrodes before using the current.

In acute poliomyelitis, as well as in neuritis, massage is useful, but it should not be employed until the acute stage is over. Any rubbing that causes pain should be avoided. The limb should be rubbed in an upward direction, then the muscles should be kneaded and rolled. Fatigue should be avoided but the process should be repeated at least once a day. Hot water and sea salt will prove valuable for bathing the limb. The muscles should be gradually strengthened by exercise and the resistance to voluntary movement is the best exercise for the weakened muscle. Later gymnastic exercises may be attempted.

In all cases be careful of fatigue. Guard against the occurrence of contractures that are found to follow the severe cases of poliomyelitis. Apparatus may be necessary.

Ramsay, A. M.: Purulent Ophthalmia. (*The Edinburgh Medical Journal.* Vol. xii., No. 1. 1900.)

Ophthalmia neonatorum has its origin in specific contagion, and in all virulent cases a special microorganism—the gonococcus of Neisser—is found not only in the pus cells, but also in the superficial layers of the conjunctival epithelium. Severe cases, however, may arise from other causes than a gonorrheal origin. If the first symptoms of the disease appear later than the fifth day the probability is that infection has occurred, not at birth, but subsequently by means of fingers, cloths or sponges which have been contaminated by coming in contact with lochial discharges.

Notwithstanding the fact that more than one-tenth of all blind persons have lost their sight as a result of ophthalmia neonatorum, the prognosis in this disease is most favorable if the patient is skilfully treated before the onset of ulceration of the cornea.

Prophylaxis must always play an important part. The maternal passages must be cleansed before accouchement by repeated irrigation with antiseptic solutions, and the eyes of the child ought to be thoroughly wiped and bathed as soon as possible after birth; and if there is any reason to suspect that there is infection a drop of a 2 per cent. solution of nitrate of silver should be used in each conjunctival sac. No case should be trifled with. The treatment consists principally in keeping the eyes clean and free from discharge. The best solutions for this purpose are a saturated solution of boric acid, bichloride of mercury 1 to 10,000, formal 1 per cent., phenol $\frac{1}{2}$ per cent. and sterile saline solution.

Nitrate of silver is the one drug which destroys the virulence of the disease. It should be used in a 2 per cent. solution and the eye then washed with a salt solution.

Protargol, in a 5 per cent. solution, is a new agent of great value in the treatment of ophthalmia neonatorum. It may also be used in an ointment on the edge of the lids. For corneal ulceration, atropin or eserine will be needed.

After the purulent discharge has ceased, sulphate of copper may be applied to the hypertrophied papillæ, but this remedy must not be employed if there is any ulceration of the cornea.

Infants who have this disease must be well fed and cared for.

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HYPERTROPHIC PYLORIC STENOSIS IN INFANCY.

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As far as I have been able to ascertain, the published records of fatal cases of hypertrophic pyloric stenosis occurring in infancy, which have been verified by *post-mortem* examinations, are 23 in number. Saltau Fenwick¹ makes brief mention of one or two others, and there is further reference to additional cases in the *Medical Record*, Vol. liii., page 709. Of reputed instances of the same condition occurring in older subjects there is a considerable series. Landerer² and Maier³ between them have collected 31 cases, chiefly in adults; and, from Russian literature, Knasnobayeff⁴ has discovered an aggregate of 5, including 3 cases of his own; these are all in young children. The following is, however, I believe, a complete list of all the published cases occurring in infancy. I have arranged them as far as possible in the chronological order of publication, and at the end I append a case of my own:

CASE I.—WILLIAMSON'S CASE.⁵—History and symptoms of the case are brief: At birth it was a plump, apparently healthy baby, but a few days afterwards vomiting came on, and the matter ejected was coagulated milk. During the last fourteen days the bowels were obstinately constipated, and the child seemed to be falling off considerably in flesh, till it gradually sank exhausted five weeks old.

"I think we may fairly regard it in the light of a congenital affection, since it is hardly possible to conceive that such an amount of disease could have taken place in the brief space between birth and death."

Pyloric orifice was so contracted as scarcely to admit a silver probe, and the "*tumor*" presented the appearance of a scirrhus.

CASE II.—DAVOSKI'S CASE.⁶—Infant, born healthy and robust, for four weeks was satisfactorily nursed by mother. Vomiting then began, and, symptoms being attributed to milk, a wet-nurse was obtained, but in spite of change vomiting continued, vomit consisting of coagulated milk and a large quantity of mucus. The stools were dark brown, and only contained a small quantity of fecal matter. The stomach was very tender, mouth and tongue dry. Child died, ten weeks old, in state of marasmus.

Autopsy.—At the pylorus was a tumor the size of two fingers. The stomach wall was thickened and hard, especially at pyloric end. The opening of the pylorus hardly admitted a stylet.

Davoski does not venture to say whether the stomach and pyloric changes were ante- or post-natal.

CASE III.—HIRSCHSPRUNG'S CASE⁷ (1).—Well-developed child, weighing over 3,000 grammes, nursed by the mother. Nothing abnormal till tenth day, when severe vomiting set in. Castor oil was given with good result. From the tenth till the twentieth day the bowels were not opened, but merely blood-stained slime passed per anus. The symptoms pointing to bowel mischief, the child was lightly chloroformed and the rectum examined. Nothing was discovered. With more or less continued vomiting, the child died, thirty days old.

Autopsy.—Esophagus dilated and thickened throughout. Stomach wall thickened, and at the pyloric end a cylindrical thickening, about $2\frac{1}{2}$ cm. long. A medium-sized sound could pass through opening. The mucous membrane was puckered up into six parallel folds, extending from the pylorus into the stomach.

CASE IV.—HIRSCHSPRUNG'S CASE⁷ (2).—Healthy child, well developed, weight about 3,750 grams.; for fourteen days it apparently exhibited no symptoms, and then came under observation. There was continual vomiting, with slight diarrhea at first, the actions were subsequently good. When about three months old it weighed 3,000 grams.; it took about 1,000 grams. of food during the twenty-four hours (seven or eight meals), it was usually sick about four times a day. About the fourteenth week the appetite was better, took 1,500 grams. in twenty-four hours; the vomiting more copious and more frequent (about three to five times a day). At the end of fourteen days

the infant had lost 500 grams. From the twenty-first week the temperature began to rise, lung symptoms and petechiæ on the skin began to appear, and it died a little more than six months old.

Autopsy.—Lungs infiltrated with tubercle, with a cavity the size of a nut, and general miliary tuberculosis.

The stomach was dilated, the mucous membrane smooth and pale, the muscular and serous layers were a little thicker than normal, the pylorus was thickened for a length of about 3 cm., and the muscular coat was about 2 mm. thick. The lumen was slightly (etwas) narrowed, about the thickness of an ordinary pencil.

CASE V.—PIDEN'S CASE.⁶—This was a case in which vomiting commenced on the third day. Piden remarks: At first I was inclined to regard the case as one of vomiting so common in children when the milk supply is plentiful, and in this relation it may be well to mention that the three previous children were all great vomiters. [It is conceivable from the above significant remarks that the stomach of this infant was overloaded as in my own case.—E. P.] Death at the end of the third month.

Autopsy.—Showed marked hypertrophy of the circular muscular coat.

Speaking of the circular muscular fibres: "Under low power certain areas of the muscular fibres had a dull homogeneous appearance, while others presented a more reticulated aspect. Higher power proved the dull areas to be composed of normal muscular fibres seen on cross-section, but the reticulated portion presented at first sight a puzzling appearance, and only after examining many sections was it shown to be due to enormous hypertrophy of each individual cell, giving the appearance, roughly speaking, of a large nerve fibre."

CASE VI.—HENSCHEL'S CASE⁹ (1).—Child always had weak digestion, was fed on pap, bread, etc., and always showed signs of gastric catarrh; was constipated generally, sometimes diarrhea; died sixteen months old.

Autopsy.—Stomach greatly enlarged, chiefly in long axis. Pylorus hardly allowed small finger to pass through lumen, the mucous membrane was in folds, the wall of the pyloric portion was hypertrophied throughout.

CASE VII.—HENSCHEL'S CASE⁹ (2).—Child born of parents who both suffered from gastric troubles; two sisters and one

brother showed similar symptoms, though the boy was finally reared with great difficulty. The two girls died, one seven months (no autopsy) and the other five and a half (autopsy, pylorus thickened but not stenosed). The child in question was at birth sound and healthy, but fed on veal broth, barley water and milk, showed from birth signs of weak digestion and constipation. During first six months he was always sick when more than a small quantity of food was given. When nineteen months old child was brought to hospital, it was found then well nourished, was frequently sick, and passed little per anum. Commencing rickets manifested itself; abdomen prominent. When twenty months old child had chronic enteritis, finally died two years old from exhaustion and vomiting.

Autopsy.—The right half of the stomach presented thickening of its walls, the pyloric opening the size of an ordinary lead pencil, the mucosa was thickened and extended well into the duodenum.

CASE VIII.—PITT'S CASE.¹⁰—*Hypertrophy of the pylorus in a child seven weeks old.*—When it was *three weeks* old was admitted for vomiting, the colon was found distended with scybala, the child was healthy and well nourished up to time of admission. It died five weeks old. Pitt remarks:

"I am entirely at a loss to offer any explanation of the hypertrophied condition of the pylorus; undoubtedly there must have been some especial difficulty in the escape of food through the pylorus, and thus led to general hypertrophy, but it is improbable that the unusually sharp flexure of the duodenum, which was noticed could have been the origin of the trouble."

There is no note of the method of feeding up the time of entering the hospital. It seems, however, to have improved sufficiently under careful dieting to have been allowed to leave the hospital; it was readmitted ten days later with symptoms worse than before. Possibly the child had been over-fed during the interval.

CASE IX.—FINKELSTEIN'S CASE.¹¹—Child fed from birth on diluted milk, vomited from birth, was brought when twelve weeks old to the hospital. Tumor the size of the little finger could be felt in position of pylorus. Stomach could also be felt when contracted, the waves of contraction passing from left to right. Died fourteen weeks; diagnosis was correctly made.

Autopsy.—Stomach greatly enlarged. Pylorus hard, and the mucous membrane red and swollen, apparently closing the

entire lumen. The entire thickness of the pylorus 2 cm., the muscular portion chiefly.

CASE X.—GRAN'S CASE¹² (1).—At first child apparently healthy; at second month began to vomit. Food consisted of alternate feedings of milk and rice meal. The stools, which were normal at first, subsequently became catarrhal, green, and slimy.

Autopsy.—Pylorus narrow; stomach enlarged, containing large clots of undigested milk.

CASE XI.—GRAN'S CASE¹² (2).—Child of healthy parents. Fed for first six weeks on condensed milk, afterwards with cow's milk. No symptoms till second month, then vomiting set in, with fetid stools and a tendency to constipation. During end of illness there is a note that the feeding consisted of eight bottles per day of four ounces each.

Autopsy.—Pylorus strongly contracted, diameter of lumen 3 mm., thickness of wall 4 mm.

CASE XII.—GRAN'S CASE¹² (3).—Boy six weeks old. Was ill-nourished but had no particular symptoms. Was treated as out-patient and at eight weeks was reported well. Two days later was brought again to hospital, having been sick and the stools offensive. On the following day the vomiting had ceased and was taking food well. The stools were green and slimy, although only one had been passed since the day before. It continued fairly well during the next three weeks, but lost 270 grams. in weight. Three weeks later there were symptoms of catarrhal enteritis. The child subsequently died of bronchopneumonia.

Autopsy.—Stomach enlarged, walls thickened, pylorus narrow, and muscular layer at pylorus about $\frac{1}{2}$ cm. thick. Patches of congestion throughout intestines.

CASE XIII.—DE BRUIN KOP'S CASE.¹³—Child born healthy. Some hours after birth vomiting commenced, and thereafter every feeding, whether from the breast or with cow's milk, was speedily followed by emesis. Death followed about three weeks after birth.

Autopsy.—Stomach was enlarged and extended one finger's breadth below the umbilicus; in the position of the pylorus was a tumor the size of a marble, and of cartilaginous hardness. There was marked pyloric stenosis, and the microscope showed that the thickening was chiefly due to a hypertrophied muscular layer, even the muscularis mucosæ being clearly thicker than

normal. It may be supposed that the stenosis gave rise to an enormous compensatory hypertrophy, but the manner in which this came about remains doubtful.

CASE XIV.—THOMSON'S CASE¹⁴ (1).—Child at birth was well grown and well nourished, and during first ten days of life caused no anxiety. He seemed to take as much milk (from bottle) as other babies; appetite always good. He was, however, rather given to drinking greedily, and when he did so some of the milk came up afterwards. Third day was given castor oil—vomited, and this was repeated during next few days three times, only once being retained. From eleventh day he vomited everything he was given till he died at twenty-eight days.

Autopsy.—Esophagus dilated; stomach greatly dilated; pylorus greatly thickened, feeling like solid cylinder 9-11th inch in diameter; muscles of stomach greatly thickened; circular muscles of pylorus is more than three times the normal thickness.

CASE XV.—THOMSON'S CASE¹⁴ (2).—Born healthy; for first five or six weeks fed at breast; mother thought there was very little milk to give him; but nurse said there must be a good deal, because the baby was always wetting his bib by putting up a little after each nursing; he rarely, however, was sick during first few weeks. When about four weeks old he began to vomit after almost every time he took the breast. He was now gradually weaned to cow's milk diluted, and Mellin's food, etc., but vomiting continued, generally about half-hour after food. Finally died, nine and a half weeks old.

Autopsy.—The esophagus dilated, stomach dilated, pylorus is distinctly enlarged and feels almost solid. It measures $\frac{5}{8}$ inch diameter, mucous coat of stomach in state of catarrh, muscular walls thickened towards the pylorus. When pylorus was split open its thickening was found to be entirely due to enormous hypertrophy of the muscular coat.

CASE XVI.—THOMSON'S CASE¹⁵ (3).—Child born healthy; weight 7 lb. 2 ozs. Seemed perfectly normal. There was very little breast milk, and what there was did not satisfy her. She would remain at the breast for even forty or fifty minutes without getting enough. She soon became exceedingly restless. Her motions were very small, green and slimy. After persevering for a week or so, mother gave up nursing and tried cow's

milk and water for the bottle. So far there had scarcely been any vomiting. At first the bottle seemed to satisfy the child much better than the breast had done, but vomiting began almost at once and rapidly became severe. After this a variety of methods were tried, but only with success when a small quantity of fluid was given. Died at thirty-seven days.

Autopsy.—Stomach enlarged. The pylorus felt like solid cylinder, though not so hard as in two former cases, $\frac{5}{8}$ inch diameter, $1\frac{7}{8}$ inch circumference, $\frac{7}{8}$ inch in length. Stomach wall thick towards pylorus, mainly due to muscular coat. Microscope showed enormous thickening of inner circular layer of muscular coat.

CASE XVII.—SCHWYZER'S CASE¹⁶ (1).—Child well developed at birth; weight 8 lb. 8 ozs. During first two weeks thrived well on mother's milk; then she began to vomit occasionally, and suffered from repeated attacks of slight diarrhea. Stools sometimes greenish, but never showed any evidence of serious intestinal catarrh. Symptoms continued, and in spite of treatment the infant died at eleventh week.

Autopsy.—At pylorus was tumor 2.4 cm. in length, 2.1 cm. in thickness. The walls of stomach showed corrugations radiating towards the pylorus; the lumen of pylorus admitted probe 2 mm. The microscope showed submucosa and muscularis mucosa to consist of coarsely fibrous structure together with many smooth muscular fibres. The circular muscular fibres were enlarged and numerous, the layer being 3.5-4 mm. in thickness.

CASE XVIII.—SCHWYZER'S CASE¹⁷ (2).—Child born October 2, 1896. Healthy at birth; weight $6\frac{1}{2}$ lb.; was fed on condensed milk and water; constipated. Soap and water injection brought away whole particles of curdled milk, and often mucus. No physician was consulted till October 30th—four weeks—when the child vomited frequently. Barley water and sterilized milk ordered. This could not be retained, even when greatly diluted. The result was the same with cream and water. Stomach washings brought up much mucus. The gastric juice contained some free hydrochloric acid, and showed almost no starch reaction. Diluted malted milk was apparently supplied till November 18th, with the result that vomiting had ceased, the diuresis increased, but there seemed to be less assimilation of food, as the child was more emaciated, the

vomiting now began again, and he cried after each feeding. At the period stomach washings brought up much tenacious, glairy mucus; no free acid was found. Once the vomited matter showed distinct bile. He was kept alive for a few days on nutritive injections, and died on the evening of November 20th.

Autopsy.—Stomach enormously dilated. Pylorus transformed into almond-shaped tumor, 26 mm. long, 13.5 mm. in diameter. Serosa measured 0.75 mm., musculara 3.5 mm., mucosa 1.5 mm. A 1.5 mm. probe could scarcely pass. The lower part of the tumor projected into the duodenum like the portio vaginalis.

CASE XIX.—ASHBY'S CASE¹⁸ (1).—Infant, born plump and healthy, was fed at breast, and all went well for about one week. Then vomiting began, and large quantities were pumped up—more, the mother thought, than could be accounted for by the food taken. Gradually lost weight, and died in a few weeks.

Autopsy.—Stomach much hypertrophied, there was some irregular contraction of the muscular fibres, giving the stomach more or less of a sacculated appearance. At the pylorus there was a hard, rounded mass, 2 cm. in diameter, feeling much like a scirrhus tumor. The pyloric opening was 2.5 mm. in diameter, and continued at about this calibre for 2 cm. Most of the swelling consisted of hypertrophied muscular tissue, with swollen mucous membrane.

CASE XX.—ASHBY'S CASE¹⁸ (2).—Infant, three days old, was admitted for imperforate anus. Infant continued to vomit, and died when five days old. Pylorus was found highly stenosed, with some hypertrophy round it.

CASE XXI.—STERN'S CASE.¹⁰—Healthy child, well developed at birth, five weeks old was brought to hospital, having lost one-third of its original weight. The child suffered from obstinate constipation from birth, and from the fourth week continual vomiting occurred. The vomit was free from bile, and the enemata were returned with bile-colored slime. The diagnosis of some congenital obstruction at the pylorus having been made, laparotomy and Kocker's operation were performed. The child died the following night.

Autopsy.—A ring-like tumor at the pylorus, over which the mucous membrane was continuous with that of the stomach.

The pylorus extended into the duodenum, much as the cervix uteri does into the vagina. The central opening admitted a "fine sound." The microscope showed great hypertrophy of the circular muscles.

CASE XXII.—ROLLESTON'S CASE.²⁰—Was sick from the first when fed at breast, then condensed milk, and thirdly cow's milk was substituted. The vomiting began half an hour after food, and the child died at eight weeks.

Autopsy.—Showed great hypertrophy of the pylorus and considerable stenosis.

CASE XXIII.—MELTZER'S CASE.²¹—Born December 10th, 1897. Meltzer was called to see the child three days after birth. She was constantly crying, except when she took the bottle, from which she drank hastily and with unusual eagerness; the mother had no nipples, and the child was fed with milk and water, one to four. She vomited immediately after drinking, the milk being yet uncurdled. "I advised that the baby be fed with smaller quantities, but at regular intervals, and prescribed HCl. and aqua laurocerasi to be given before each meal. This had a favorable effect, the child was resting better, drank from the bottle with less haste, and retained the milk.

"I was next called January 2, 1898, about three weeks later, and was told that the medicine had been given for some time and then discontinued, the condition of the child appearing to be satisfactory; but meanwhile the nipples of the mother's breast were drawn out, and the child put to the breast; soon the vomiting commenced again and was more profuse than before. I stopped the mother's nursing, washed out the infant's stomach with saline solution, and gave calomel, which was retained and had a good effect; the baby now only received oatmeal water, the first day only one ounce, and on the following two days two ounces every hour. The child now retained all that was given it; the bowels moved spontaneously. January 6th, a good wet nurse obtained, the baby took breast with eagerness, drank hastily, emptied one in a few minutes, and soon vomited apparently all that was swallowed; this occurred every time the child was put to the breast. The milk was then given to the child slowly and in small quantities, after being withdrawn by the pump with good effect. Diagnosis of stenosis made, and operated January 23; forty-four days old. Child died shortly afterwards."

Autopsy.—Stomach enormously dilated, the walls of the pylorus were considerably hypertrophied, and the lumen only admitted fine probe of less than one millimetre thickness—the thickness consisting chiefly of a dense fibrous tissue in the sub-mucosa and hyperplasia of the inner muscular layer.

CASE XXIV.—MY OWN CASE.—Healthy male child; born full time, of healthy parents; it weighed 9 lb., and had one healthy elder brother living. It was fed by hand, and looked after by the monthly nurse for the first three weeks of life; it was not seen by the doctor in attendance, as it appeared to be doing well. The quantity of food (diluted milk) given was stated to be the bottle full (5 ozs.) every three or four hours. During the first three weeks there were no symptoms except sweating, which was profuse, but the weather was very hot, and might have accounted for it. At the third week vomiting set in; the urine was very scanty, and the bowels constipated; the amount of food was reduced, and bismuth and soda given. In spite of treatment the symptoms continued, and the child persistently lost weight, until at the seventh week it weighed only 6 lb. At this period it was brought up to London to be under Dr. Cheadle's care, and from then till the time of its death I had an opportunity of watching it together with Dr. Cheadle. Examination showed that it was emaciated to an extraordinary degree, face pinched and anxious, bones small, and fontanelles normal, but slightly depressed; lungs and heart normal; tongue and fauces remarkably clean; the abdomen was flaccid and carinated, and the vertebral column was easily palpated through abdominal walls; there were no enlarged mesenteric glands; the upper part of the abdomen was more prominent and resonant to percussion. At times the outline of the stomach was quite evident, and extended as far as, or below, the umbilicus. Carefully watched, slow waves of contraction could be distinguished passing from left to right, the time occupied being from three to four seconds from the time of commencement at the cardiac end to its disappearance at the pylorus; occasionally, however, the wave of contraction would remain stationary for some seconds midway between its commencement and its completion, giving the stomach an hour-glass-shaped appearance. No tumor or sense of resistance could be made out at the pylorus. The temperature was normal. On the day following my first examination the child was driven from South Kensington in a closed carriage to

see Dr. Cheadle at his house, but while in his consulting room it was seized with convulsions and the temperature rose to 104.5° F. and the respirations were of the Cheyne-Stokes character. A few hours after it had been taken home I saw it again. It was then apparently moribund, but recovered somewhat after an enema of Valentine meat juice and brandy. By nutrient enemata and teaspoonful quantities of food by the mouth it not only maintained life, but seemed to put on weight and gain in strength, and all vomiting had ceased. But on the tenth day after its arrival in town the head became retracted, there was external strabismus, hiccough, deviation of the head to the right, and carpopedal contractions; indeed the nails of the hands were driven into the palms and pads of lint had to be interposed. With these symptoms there was marked incoordination in the act of deglutition and practically nothing could be swallowed; and the enemata, which up to now had been well retained, were immediately rejected. Two days later the child died.

Autopsy.—The brain and meninges were slightly congested and the lateral sinus distended. All the other organs appeared healthy and normal. The esophagus was dilated throughout, especially at its junction with the stomach. The stomach was enlarged and capable of containing about 7 ounces of water. The walls were slightly thickened, especially at the pyloric end. At the pylorus itself was a hard annular thickening, giving almost the appearance of the impaction of some foreign body about the size of a large filbert nut. A no. 5 catheter could just pass through the opening. On slitting the pylorus open the walls were found to be enormously thickened, and to consist of a pale homogeneous tissue. Microscopically, the circular muscular layer was found to be greatly hypertrophied, but beyond this there was nothing abnormal in the structure.

In July of 1895 I met with a case which, as regards its clinical features and *post-mortem* appearances, must be regarded as a typical instance of so-called "congenital" hypertrophic stenosis. At the time, however, I was not satisfied that it was a simple case of developmental malformation, partly because the symptoms did not supervene till three weeks after birth, and partly because in the remarkable method of feeding I thought there was sufficient explanation of the subsequent events. Referring then to the published literature, I found only a few similar cases (seven) and but little to substantiate or negative my own views as to the

etiology. But since that date further additions have been made to the list, and several theories formulated in explanation of the cause. The majority of those who venture a theory regard the hypertrophic stenosis as a pure congenital malformation, or error in development; others, and notably Thomson,¹⁵ believe that the hypertrophy is the result of over-action. Some authors presuppose an obstruction at the pylorus, either relative or absolute, while others simply regard the stenosis as functional and dependent on the condition of the muscle of the sphincter. Thomson believes that the hypertrophy may be the result of muscular over-action consequent on some antagonism between the musculature of the stomach and the pylorus, due to perversion of the nervous mechanism, possibly the result of swallowing large quantities of liquor amnii during intrauterine life. Tilger²² believes that in the majority of cases there is a combination of congenital stenosis and secondary hypertrophy.

In a recent paper Pfaundler²³ calls in question the accuracy of the observation recorded by Hirschsprung,⁷ Henschel,⁹ Gran,¹² Stern,¹⁹ and others, and denies that the cases they describe are true examples of hypertrophic stenosis. The symptoms presented by their cases were due to a functional spasm of the pylorus, and the *post-mortem* anatomical appearance to a condition of tonic contraction (systole) at the time of death. He further adds that such appearances are commonly (1 in 3) found in the autopsy room in the case of infants dying from other causes: under such circumstances the pylorus is impervious to fluids, unless a constant pressure is maintained for some minutes; the sphincter then relaxes and allows a free channel for the outflow. Pfaundler²³ does not appear, however, to have made himself acquainted with all the published cases, especially those of Meltzer²¹ and Schwyzer,¹⁷ in which accurate *post-mortem* measurements are given. Although his hypothesis might account for an exaggerated appearance of hypertrophy, in the light of so much accurate evidence it seems that one must admit of some degree of actual and real hypertrophy in the majority of published cases. With regard, however, to the degree of the stenosis, it is probable that the *post-mortem* measurement is no accurate gauge of that which obtains during life; for in many instances the *post-mortem* description of the mucous membrane is that it is folded into many ridges, a condition which is suggestive of possibilities of relaxation. In one case—no. 8—

there was no actual obstruction found at the autopsy, though the pylorus was considerably hypertrophied; perhaps in this case the spasm had given way before death occurred. We know, moreover, that where the stenosis is really organic (fibrosis) life is compatible with narrowing to the extent of 2 mm., for in a case quoted by Landerer² a man lived to the age of forty-five under such conditions. Meltzer²¹ gives a case of extreme stenosis, 1 mm., as measured *post-mortem*. Yet in this case food from the beginning to the end, sufficient to keep up metabolic equilibrium (there was no loss in original weight), passed through the pylorus (Case 23).

From the above evidence it may be safe to conclude that though the muscular hypertrophy may to a certain extent be gauged by *post-mortem* evidence, the same is not true of the degree of stenosis.

If, however, the symptoms in these cases be admitted to be due to a functional rather than to an organic stenosis, it yet remains to be shown why such a muscular spasm should be present, and why, if present, it should lead to secondary hypertrophy of the muscle.

As regards the first point, if the muscular hypertrophy of stenosis is due to spasm, there is an apparent contradiction in the fact that certain cases have died shortly after birth with *post-mortem* indication of hypertrophy, and symptoms pathognomonic of pyloric obstruction from the first few days of life (Cases 5 (?), 8 (?), 12, 19, 21). In these it must be assumed that the conditions necessary for their production have obtained during intrauterine life (Thomson), or that "the pyloric valve has variable dimensions in different individuals, and it must occur that in one or the other individual it attains such a size as to be pathological from a teleological sense" (Meltzer). In favor of the latter view may be instanced Ashby's case (no. 20), in which there was also a congenitally imperforate anus, and one quoted by Brand in which there was a concomitant stenosis of the ileo-cecal valve. There is also a case on record in which there was a double constriction of the intestine in addition to pyloric stenosis. The cases, however, which give indication shortly after birth of pyloric obstruction are the exception rather than the rule. The majority are free from symptoms for a variable period—

[Case 1, a few days. Case 2, four weeks. Case 3, ten days. Case 4, fourteen days. Case 5, three days. Case

6, first day (?). Case 7, first day (?). Case 8, twenty-one days. Case 9, first day. Case 10, second month. Case 11, third month. Case 12, six weeks. Case 13, from the first day. Case 14, eleven days. Case 15, four weeks. Case 16, seven days. Case 17, two weeks. Case 18, four weeks. Case 19, seven days. Case 20, three days (?). Case 21, four weeks. Case 22, from first day. Case 23, first day. Case 24, three weeks.]

—a time sufficient in most cases for the circumstances of extra-uterine life to have exercised a modifying influence. Both Meltzer²¹ and Thomson,¹⁵ however, deny that the degree of hypertrophy found in their cases could have been produced in the few days elapsing between the time of birth and the death. It must, however, be remembered that there may be a foundation of truth in Pfaundler's view, namely, that the hypertrophy is more apparent than real, owing to the condition of spasmodic contraction, and also that during the first few days of life the stomach is capable of immense development on the assumption of its organic functions. Under suitable conditions of stimulation the pyloric sphincter may participate in this functional and organic evolution. What may be the necessary conditions for such over-action of the pylorus it is difficult to define from the evidence of known cases. If, as Thomson thinks, there is some inherent fault in the nervous mechanism, a contributory factor may be the swallowing of large quantities of liquor amnii in utero, or too large quantities of food during the first few days of life. The latter is a common event, not only in this country, but in France and America. Variot has recently called attention to frequent disastrous results of this practice. In my own case (25) there can be no doubt that the child was enormously overfed; but, in spite of that, no symptoms supervened till the third week. If at birth the same conditions had existed at the pyloric valve as were found at death, it is difficult to see how life could have been maintained. Unfortunately, in most of my cases there are no exact details as to the quantity of food taken before symptoms supervened, but there are indications in some of them that the infant imbibed large quantities, or exhibited signs of greediness; for instance, Case 5. Piden at first regarded the vomiting as possibly due to the plentiful supply of milk. In Case 14, Thomson remarks: "Appetite always good; given to drink greedily." Case 11, eight bottles of four ozs. towards end of illness (a very large quantity under the cir-

cumstances). Case 15, the nurse thought the infant took a good lot of milk. Case 16, the child would remain at the breast forty to fifty minutes at a time. Case 19, child breast-fed; vomited "large" quantities, more than it was supposed to have taken. Case 23, infant drank hastily and with unusual eagerness; when fed with smaller quantities the effect was favorable. In reading through the original notes of the cases carefully, it is most noticeable that the symptoms improved enormously when the patients came under supervision in hospital; with careful treatment and limitation of food the effect was favorable, while under care of the mother they often relapsed. Henschel's cases are of extreme interest in this respect. In one family, with a history of indigestion, four children suffered from practically the same symptoms—*i.e.*, those of pyloric obstruction. The three first died; two of them were examined *post-mortem*; in one hypertrophy and stenosis were discovered, in the other hypertrophy. The fourth child survived. With the experience gained from the first cases the mother managed more successfully in the last—she was apparently a careless woman, and her method of feeding was apparently anything but satisfactory. Almost without exception the 25 cases I have collected were those of children who were born healthy, well developed, and of full weight, and with good capacity for taking food. Many of them, however, sooner or later, gave evidence of gastric catarrh, bowel or other trouble (Cases 2, 3, 4, 6, 7, 10, 12, 16, 17), highly suggestive of errors in feeding, but the pathological conditions thus engendered may have been in themselves contributory factors in the production of spasm or incoordination in the action of a hyper-sensitive pyloric sphincter, with an intolerance of relaxation comparable to that of the sphincter vaginæ in cases of vaginismus.

The hypertrophy of the pyloric ring is in nearly all the cases described as sharply defined, with practically no signs of fibrosis, and seldom is there mention of inflammatory condition of its mucous membrane. The hypertrophy is chiefly confined to the circular layer. Although, in some of the cases, thickening of the submucosa and other layers is mentioned, it is probable that it is not greater in degree than could be accounted for by a condition of contraction of the circular layer; in Case 5 there is a note by Piden that *post-mortem* the individual muscular elements were abnormally large in cross section; he attributes this to individual hypertrophy of the cells. That such a

condition could be due to a freak in development seems doubtful; in the nature of things it surely must have been due to over-action. Meltzer, however, appears to doubt that "tonic" contraction of the pylorus could lead to hypertrophy of its own coat; that it should lead to hypertrophy of the stomach walls he regards as natural enough. He says there is no instance in animal physiology of analogous hypertrophy of a sphincter. It would be interesting to know whether the sphincter vaginæ and sphincter ani do not occasionally supply instances of such hypertrophy from over-action; but even without further proof it is hard to believe that the muscular elements in the pyloric sphincter can violate so general a law in physiology.

CONCLUSIONS.

1. That the hypertrophy is secondary to over-action of the sphincter, and the stenosis chiefly due to spasm.
2. That the stenosis as measured "*post-mortem*" is but an accurate gauge of its organic degree during life.
3. That over-action and incoordinated contractions of the sphincter may be due to some fault in the nervous mechanism.
4. That injudicious feeding, either quantitatively or qualitatively may be a contributory factor of the nervous incoordination.

Since writing the above in April, 1899, several other cases have been reported, and an interesting paper by Romme²⁴ on the etiology of the condition has appeared in *Rev. Mens. de Mal. de l'Enf.* Dr. Frederick E. Batten²⁵ has published in the *Lancet* a more interesting case of recovery and subsequent death from a different cause, in which the *post-mortem* examination confirmed the previous diagnosis of pyloric stenosis. The measurements, which were taken of the lumen and various coats of the pyloric sphincter, show that stenosis was not extreme. The great interest which attaches to the case lies in fact that the successful treatment which was pursued consisted in the method of feeding, namely, by a nasal tube. Such a procedure must, of necessity, modify the act of deglutition, and probably the nervous influences which control the gastric movements. I have within the last few days received notes of another case of recovery from a condition in which the symptoms clearly

pointed to pyloric obstruction in an infant of the same nature as generally described as "congenital" stenosis. The case was under the charge of Dr. Coates, of South Kensington, and his diagnosis was confirmed by Dr. T. Barlow. In this case the successful treatment was by rectal feeding, and very small quantities of concentrated liquid by the mouth. This case will, I believe, shortly be published.

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A NOTE UPON KERNIG'S SIGN IN INFANTS.*

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Meningitis is a frequent affection in infants and children. Among 2,532 cases admitted to the medical wards of the Children's Hospital of Philadelphia, between the years 1895 and 1899, there were 77 cases of meningitis (3 per cent.). In infancy and childhood a curious mimicry of meningitis is seen especially in pneumonia (meningismus, first so named by Dupré in 1894). The decision as to the presence or absence of actual lesion of the cerebral meninges is often one of considerable difficulty. Any positive sign capable of enabling us to arrive at such a decision with certainty is, therefore, very valuable. In 1884 Kernig (*Berlin klin. Woch.*, 1884, No. 52, p. 829) described a sign that has since then received considerable attention. In his original article Kernig states that, even in cases of meningitis with no flexion of the joints while lying down, complete extension of the leg on the thigh in the sitting posture on the edge of the bed becomes impossible. Kernig found his sign present in 15 cases, of which 12 were adults, 3 being children aged seven, thirteen, and fourteen years respectively.

Netter (*Bull. et Mem. de la Soc. Méd. des Hôp.*, July 22, 1898, p. 639) found the sign present in 90 per cent. of his 46 cases of meningitis. Of 41 cases in which the sign was present 32 were children. Henoch (*Vorlesungen über Kinderkrankheiten*, 8th Edition, 1895) states that Kernig's sign is not pathognomonic as it was absent in one of his cases that came to autopsy.

While the presence of this sign is a valuable aid in the diagnosis of meningitis in adults and in children, its absence should not have too much weight in excluding the presence of meningitis in infants, as the cases related below will prove. The importance of attaching no undue value to this sign is seen especially in the differential diagnosis between meningitis and meningismus in the course of pneumonia.

Harry P., white, aged sixteen months, was admitted to the Children's Hospital on October 8, 1899, and died on October 13, 1899. There was no tuberculosis in his family or among the inmates of the house in which he lived. There was a doubtful

* Read before the Philadelphia Pediatric Society, February 13, 1900.

history of injury to his head just before the onset of his symptoms. Three weeks before admission his illness began with rather indefinite symptoms. Examination showed that he was stuporous, with equally and widely dilated pupils, internal strabismus, and rigidity of the nucha and retraction of the head. On the day after admission Cheyne-Stokes breathing developed. During the dyspneal period the left leg was kept in constant motion. Lumbar puncture gave about an ounce of slightly cloudy fluid, of a specific gravity of 1005, containing a slight amount of albumin, and no sugar. No microorganism could be found in the fluid, which contained but a small number of leucocytes. Kernig's sign was absent. The puncture was immediately followed by regular respiratory rhythm and disappearance of the movements of the left leg. Kernig's sign was daily looked for but there was never any difficulty in completely extending the leg on the thigh in any position of the patient.

Autopsy showed miliary tubercles in the membranes of the brain and spinal cord, lungs, spleen, liver, and intestines.

Henry M., white, aged sixteen months, was admitted on October 27, 1899, and died on November 28th following. His illness dated to six weeks before his admission. Examination showed consolidation of the left lung, which began in the lower lobe and later involved the apex. His pneumonia followed a peculiar, erratic course and on November 29th he had a convulsion beginning in the right arm, but involving also the right leg and right side of the face. The right eye was inverted, but the pupils were equal. The neck was very rigid. Kernig's sign could not be obtained. Lumbar puncture gave 4 c.c. of blood-tinged fluid in which no microorganism was obtained. On November 28th the convulsions continued, the left arm also taking part. Kernig's sign was still absent. At autopsy diffuse leptomeningitis with thrombosis of a vein over the right occipital lobe were found.

Wm Henry, colored, aged two years, was admitted on October 26, 1899, and died four days later. He had always been fed on cow's milk and had never thrived. He laid with the head thrown back, and was very dull. Examination showed the anterior fontanelle widely open. The neck was very rigid. Kernig's sign was absent, extension of the leg on the thigh being present in all positions. There was no change on the next day. Lumbar puncture on October 30th gave no

fluid. Kernig's sign was persistently absent. At autopsy there was found slight excess of cerebral fluid, with slight dilatation of the ventricles, small miliary tubercles on each side of the great longitudinal fissure over the motor regions, and scattered tubercles in the lungs with caseous bronchial glands.

Hypertonia can exist in infancy as is evidenced particularly by the phenomena of tetany. The following case exhibited the condition most typically:

Ralph H., colored, aged four months, was admitted to the hospital on December 10, 1899, and died on February 6, 1900. From the time of his admission until his death there was such rigid flexion that the whole body could be lifted from the bed by placing the hands under the heels, the knees being held constantly at about a right angle with the thighs, while the latter were flexed on the abdomen to about the same degree. At autopsy there was found no anatomical change.

I would not be considered as endeavoring to belittle the value of Kernig's sign of meningitis. It is of undoubted value in the diagnosis of meningitis in the adult and in older children. I would, however, call attention to the possible error that might arise from attaching too much importance to it in the case of infants. The three cases of meningitis reported above were aged sixteen months, sixteen months, and four months respectively. All of them were proven by autopsy to have had meningitis, in all this sign was absent during life. Since their occurrence I have seen none that would enable me to determine at what age the sign becomes more significant. It is, I believe, a question that should be decided.

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The Bacteriology of Epidemic Cerebrospinal Meningitis.

—Netter says (*Le Progrès Medical*) that in a great number of the cases that occurred in the Paris epidemic of 1898-99 the diplococcus intracellularis meningitidis of Weichselbaum was found. This diplococcus, however, was not that most frequently encountered in the course of the epidemic; the pneumococcus and the streptococcus of Bonome being of frequent occurrence. Further, the Weichselbaum diplococcus occurs in sporadic cases of suppurative meningitis, and it was only in the mild cases in the epidemic that it could be isolated.—*Glasgow Medical Journal.*

A CASE OF CONGENITAL GOITRE AND DIAPHRAGMATIC HERNIA.

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The specimen described below was sent to me by Dr. Joseph B. DeLee from the Chicago Lying-In Hospital, where the mother of the child was confined.

The mother was thirty-eight years old and had always enjoyed fair health; this was her fourth pregnancy; her labor was not a difficult one, though the child was born deeply asphyxiated. Prolonged efforts at resuscitation were made; the child gasped several times but it could not be revived.

The examination showed a well developed female child. A tumor in the mid-line of the neck was very prominent; it was the size of a walnut, hard, nodular and slightly movable. The tumor was exposed by an incision in the median line of the body, and was found to be an enlarged thyroid gland. The two lateral lobes, as well as the isthmus, were greatly increased in size.

The tissue of the gland was examined; histologically, it was found to be a very vascular structure with hyperplasia of the cellular elements of the gland.

It was observed that the diaphragm was almost completely absent on the left side; a few muscular fibres occurred to indicate the usual attachment of the muscle. By reason of this defect in the diaphragm, the left thoracic cavity contained the entire left lobe of the liver, which was large enough to fill up the greatest part of this space. (Fig. 1.)

Upon lifting the left lobe of the liver out of the thoracic cavity, the stomach was brought into view; it was noticed that this organ was placed in an inverted position, so that the greater curvature of the stomach filled the place normally occupied by the apex of the lung. (Fig. 2.)

The greater part of the duodenum, as well as a few loops of the small intestine and a portion of the transverse and ascending colon, lay within the thoracic cavity.

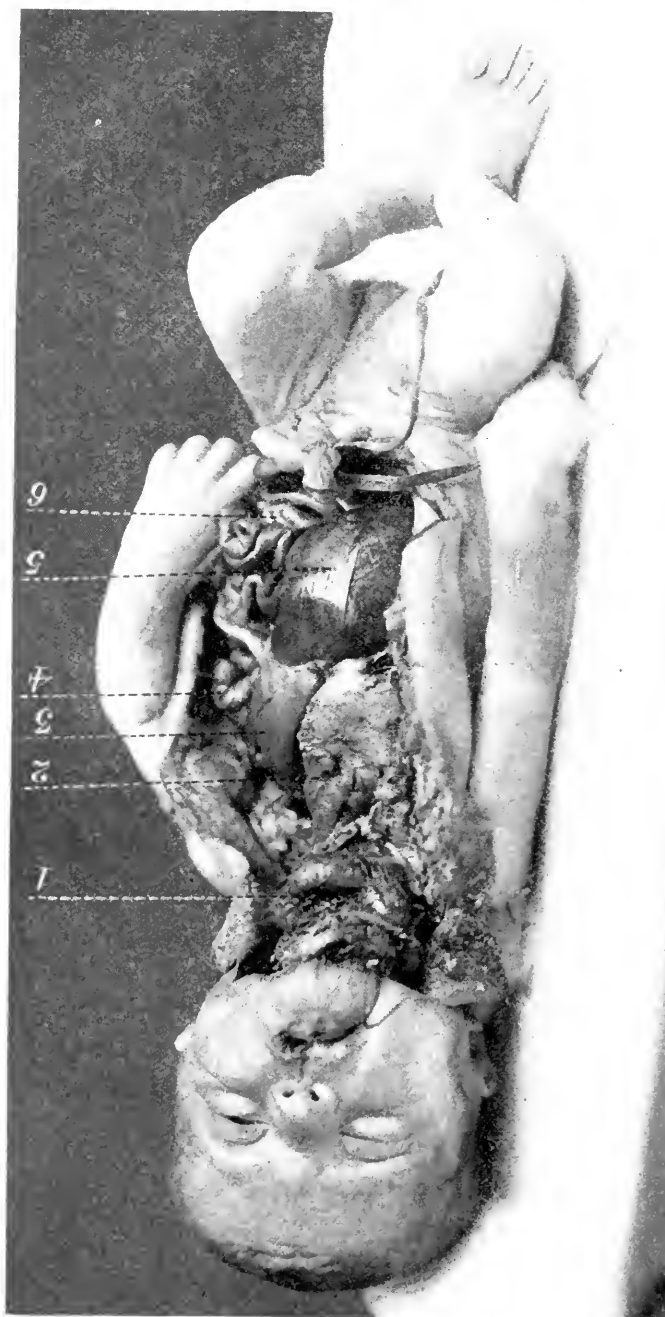


Fig. 1. PHOTOGRAPH SHOWING ORGANS *in situ*.

- | | |
|---|---|
| 1. ENLARGED THYROID GLAND. | 4. TORTUOUS COLON IN THE THORACIC CAVITY. |
| 2. HEART IN THE PERICARDIAL SAC DISPLACED TO THE RIGHT. | 5. RIGHT LOBE OF THE LIVER. |
| 3. LEFT LOBE OF THE LIVER. | 6. COLON. |

The heart was pushed to the right of the median line and lay in the right half of the thorax. In consequence of this position of the heart, the right lung was displaced upwards.

The spleen was found near the vertebral column in the left half of the thoracic cavity and was covered by the stomach and transverse colon.

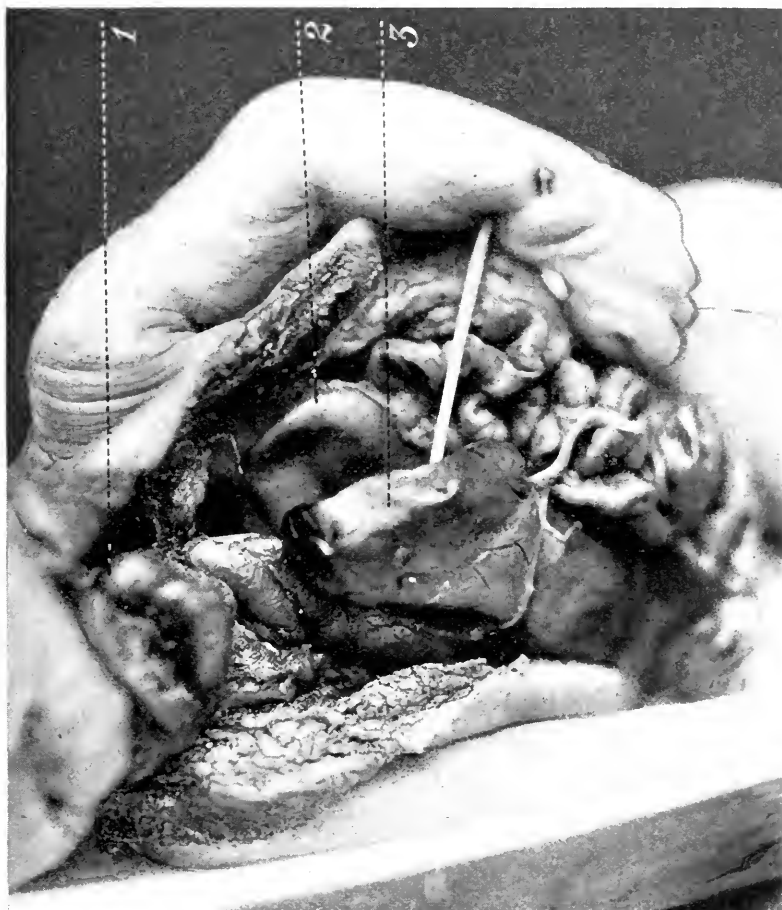


Fig. 2. PHOTOGRAPH SHOWING LEFT LOBE OF THE LIVER LIFTED OUT OF THORACIC CAVITY.
1. ENLARGED THYROID GLAND. 2. STOMACH. 3. LEFT LOBE OF LIVER.

The right lobe of the liver occupied its normal position and was of the usual size. The kidneys occupied the normal position.

The large intestine attracted attention owing to its unusual length and tortuousness. (See Fig. 1, No. 4.)

Congenital goitre is comparatively rare. It has been

observed particularly in mountainous regions, where the condition is endemic. Usually the hyperplastic variety is found, though cystic and mixed types have been described. Obstetricians are acquainted with this disease in the newly-born (1) because the cystic variety may cause mechanical obstruction to the delivery of the child; (2) cases of true congenital goitre have been reported as causing face presentation.

Congenital goitre occurs in animals as well as in man, and it is observed that in those regions where the disease occurs endemically, that animals are likely to be affected and it is not uncommon to find the disease in horses, sheep, calves, dogs and lambs.

Congenital diaphragmatic hernia is of comparative infrequency. In most cases, it is the result of arrest of development. Its recognition during life is extremely difficult. Out of 245 cases described by Lichtenstein, the diagnosis was made with certainty in only four cases, in all of which the patients were adults. Owing to its rarity, the condition is apt to be overlooked. Holt collected 116 cases due to congenital deficiency in the diaphragm. The hernia was on the left side in nearly all of the reported cases. The opening may be small, so as to allow the passage of only a single coil of the intestine, or large, so that considerable of the abdominal contents may find their way into the thoracic cavity. The heart is usually displaced to the right.

The lungs may be unexpanded or undeveloped. In Gautier's cases, nearly all of the small intestine, stomach, spleen and pancreas were found in the left chest. If a large deficiency in the diaphragm exists, the infant survives but a few hours; if a small one, life may be prolonged indefinitely. Northrup (*ARCHIVES OF PEDIATRICS*, Vol. 9, p. 130) reports the case of a child who lived to the age of three years. It presented obscure physical signs; dyspnea was the most marked symptom. Several loops of the ileum, cecum and vermiform appendix were found in the thoracic cavity.

Booker reports a case of unusual interest in the *ARCHIVES OF PEDIATRICS* for September, 1897. It was associated with attacks of asthma. The baby was well developed and at birth weighed eight and one-half pounds. It seemed well until the ninth day of its life, when it was attacked with severe symptoms of colic. From this time on, the baby had indigestion and when it was five weeks old, it had severe attacks of colic, associated with

vomiting and dyspnea. Tympanitic resonance occurred over the thorax. The breathing seemed vesicular in character, though it was more feeble than normal. The abdomen was soft and distended. The case was considered as resembling asthma dyspepticum, as described by Hensch; Osler saw the case in consultation and concurred in this view. The child seemed to be doing well, though asthmatic attacks occurred at intervals. It died at eleven weeks, during a paroxysm.

At the *post-mortem* examination a deficiency was found on the left side of the diaphragm, through which almost all of the intestines, together with the transverse colon and the greater part of the omentum had passed into the left pleural cavity, occupying the whole of it with the exception of a small space taken up by the compressed left lung. The right lung showed some compensatory emphysema.

The majority of cases are not real hernias in the true sense of the word, because there is no sac. In rare cases, the diaphragm is entirely absent; in the majority, however, half of the diaphragm is absent. Sometimes, a few muscular fibres remain on the posterior aspect of the thorax. The opening may be small, so that only a small portion of the intestine finds its way into the thoracic cavity. The liver may be partly, or entirely in the pleural cavity. The same is true of the stomach, appendix and spleen. The duodenum may lie more or less completely within the thorax. The transverse colon is not uncommonly found within the cavity of the thorax. In the majority of cases, no adhesions are present; they may occur, however, particularly in the large hernias. The heart, in these left-sided hernias, is pushed to the right, so that the entire right lung may be covered by the pericardial sac. The right lung, itself, may be compressed.

Bowditch reports twenty-six cases; of these, eleven died within two years after birth; six lived until six years old; one lived seven years, and eight children became full grown.

Incarceration is relatively uncommon, because the opening is usually extremely large. The greatest danger to these children is to be expected in the first few days of life, or during the act of birth. In this latter case, the babies do not recover from asphyxia. In the former case, cyanosis occurs and the patients are apt to die during such an attack.

THE TREATMENT OF WHOOPING-COUGH WITHOUT DRUGS.*

BY N. R. NORTON, M.D.,

Chief of Medical Clinic, Presbyterian Hospital, Out-patient Department; Physician to the New York Foundling Hospital, Out-patient Department,
New York.

The object of this paper is to very briefly put before you, for your consideration and discussion, two methods of treating whooping-cough, which are not in general use.

These methods are (1) the administration of carbonic acid gas by rectum, and (2) the use of the O'Dwyer laryngeal tube.

The number of cases treated with the gas is comparatively limited, and the results somewhat contradictory, but of enough interest to make it seem warrantable to put them before you.

It is not worth while going into the history of the subject further than to say that as far as I know it was first used by Bergeon in 1887.

In 1897 Dr. Rose, of this city, requested the staff at the New York Foundling Hospital to use the method as advocated by him in a series of cases.

It is fair to say that we were prejudiced against it, but the ordinary treatment with drugs had proved so unsatisfactory in the institution that we were willing to try anything, especially if it had none of the disadvantages of the drugs.

The method of administering the gas is very simple. A wide-mouthed bottle or jar, holding a pint or more, is supplied with a perforated cork, through which is a glass tube extending not more than half way to the bottom. To the outer end of the glass tube is attached about three feet of flexible rubber tubing, which has at the end a detachable hard-rubber nozzle suitable for rectal injections. The bottle is filled about one-third with water. Six drachms of bicarbonate of soda are dissolved in this, and there is then added one-half ounce of crystals of tartaric acid. As the tartaric acid dissolves slowly, the gas is liberated at the proper rate for administration. The rectal tube is inserted, and the administration of the gas continued as long as desired. The above quantities were found to supply the gas for the longest treatments used, or about ten minutes.

* Read before the Section on Pediatrics, the New York Academy of Medicine, February 8, 1900.

For all children the treatment was given three times daily, some two or three hours after meals. In infants the treatment lasted five minutes at each seance; in the "runabouts," ten minutes.

The effect is explained by Ephraim as being the result of the extra amount of oxygen that reaches the air vesicles, there to be exchanged for the extra amount of carbonic acid gas that the blood contains, as a result of the absorption from the rectum.

A series of 150 children had this treatment. Of the total number 143 were apparently decidedly benefited. The vomiting ceased even in the severe cases by the second or third day. The number of paroxysms was reduced and the severity diminished. The 7 remaining cases were not benefited. One of the 7 was well along in the disease before this treatment was instituted. The duration of the disease was not influenced. During the administration of the gas the entire cutaneous surface flushes, the face most markedly, and this lasts some fifteen minutes after its administration.

In a few cases a mild diarrhea was observed, apparently due to the irritation of the rectum by the injection tube, as it ceased when the treatment was suspended a day or so, and then resumed less frequently. But diarrhea is so commonly observed that in these cases it may not have been caused by the rectal treatment. Aside from this possibility, there was not the slightest ill effect observed.

The following year notes were made in a series of 20 cases treated similarly by Dr. Long, then resident physician. There was one difference in method. The gas used was not the nascent gas, but was prepared by one of the manufacturers of the city and supplied in tanks.

In this series of cases the result seemed absolutely negative. Whether these varying results were due to any difference in the nature of the gas or to errors in observation, I am unable to say.

The use of the laryngeal tube was suggested by Dr. O'Dwyer himself during the last few months of his life both verbally and in a few pages of manuscript that came into my possession after his death.

In those grave cases of whooping-cough, accompanied by frequent and severe vomiting, with consequent loss of flesh and strength, he held intubation to be a justifiable procedure, provided the hard rubber tube was used.

Dr. O'Dwyer maintained that with the metal tube, the chief cause of the so-called "retained tube," was the injury done the mucous membrane of the larynx by the spicules of calcarious matter deposited on the tube, giving rise to excoriations and ulcerations which led to either cicatricial contraction or exuberant granulations. The hard rubber tubes keep perfectly clean, and *this element* in the causation of retained tubes is done away with.

I give his own words on the subject:

"Spasm of the glottis is the sole cause of the acute suffering in uncomplicated whooping-cough, and could this element be removed the disease would be reduced to the level of an ordinary bronchial catarrh. The fear that children exhibit on the approach of a paroxysm, when they drop their play things or other occupation and run to the mother or nurse for relief, is not the dread of the cough or the vomiting that follows, but of the torture that results from prolonged spasm of the glottis. In the adult this feeling is intensified by the sense of impending death, which can never be gotten over no matter how often experienced. It is not the last hour that has come, nor the last minute, but almost the last second; the suffering is not due solely to want of air, because it begins the instant the spasm begins, and often when the lungs are well supplied with air. On this point I can speak from personal experience, having had whooping-cough when over forty years of age, and complete spasm of the glottis from other causes many times. Spasm of the glottis being not only the sole cause of the acute suffering in pertussis, but of most of the dangers as well, the main object of medication is the relief of this symptom. The cases in which all attempts at relief by drugs fail are only too common. In many of them the continuance of the severe paroxysms is a great menace to life itself. In intubation we have a means of absolutely relieving the spasm of the glottis. With the tube *in situ*, of course, the spasm cannot occur."

In support of these views of Dr. O'Dwyer three cases have come under my observation. At the Foundling Hospital, in '97, three children suffering with whooping-cough contracted laryngeal diphtheria. The stenosis became so marked that intubation was necessary for its relief.

When the tube was in the larynx its effect upon the whooping-cough was very interesting. There would appear all the

signs of a beginning paroxysm, excitement and the desire to hold on to something for support. Then followed a spasmodic cough of the usual length, as far as expiration was concerned, sometimes even causing cyanosis. But when the inspiratory effort was made there could be no glottic spasm, the air entered the lungs freely through the tube, and the paroxysm terminated abruptly without the least distress or vomiting. After the removal of the tube the disease went on as before its use.

With these results, and the danger of "retained tubes" reduced to a minimum by careful use of the hard rubber tube, Dr. O'Dwyer's views of its usefulness in severe cases would seem well grounded.

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Diagnostic Value of Radiography in Children.—Escherich (*Centralblatt für die medicinischen Wissenschaften*) says that radiography in children, on account of the extreme thinness of the tissues, is very satisfactory. The shadows which the bones produce are, however, less sharply defined than in adults, a condition which is explained by the fact that their bones contain less calcium than those of adults. In a rachitic child, an attempt was made to determine by means of the X-rays the effect of a phosphorus therapy. A change in the bone picture was not observed after a long-continued administration of the phosphorus, but the "bone-forming" zone of the forearm showed a somewhat less irregular course. The mediastinum did not furnish any useful pictures. On the other hand, the diaphragm gave sharply defined pictures, enabling one to follow the position and movement of the muscle. The heart gave very dark shadow pictures. By means of these, it was shown that in some children with post-diphtheritic paralysis a marked displacement of the heart exists; this is a sign which speaks for an unfavorable termination. The shadow picture of a normal heart stretches far wider than the zone of so-called relative cardiac dulness; the borders must be determined separately for the various ages. The dark cardiac shadow is in marked contrast to the light pictures which other muscles present. It is quite easily demonstrated that a heart emptied of its blood gives a light shadow. Therefore the fluid contents are the cause of the dark cardiac pictures. Further demonstrations showed that not the hemoglobin but the fluid itself gave rise to the dark pictures. A heart filled with water gives the same dark shadow as a heart filled with blood. All other organs as well, once they contain a large quantity of water, give dark shadows; for instance, the lungs in pulmonary edema.—*Medical Record*. Vol. lvi., No. 20.

DRUG VALUES AS OBSERVED IN THE MANAGEMENT OF 752 CASES OF WHOOPING-COUGH.*

BY CHARLES GILMORE KERLEY, M.D.,
New York.

The cases of whooping-cough I observed and report here, were seen in an institution, in out-patient service and in private practice. The institution patients comprise the largest number in the series. In order to test the value of various drugs for controlling whooping-cough, a method suggested by Dr. L. Emmett Holt was adopted.

The cases as they developed were divided into groups of twenty. They were allowed to cough untreated until the height of the paroxysmal stage had been reached. This usually required from ten to fourteen days from the commencement of the cough. Careful record was kept day and night of the number and severity of the paroxysms. When there had been no increase either in number or severity for three days we believed the height of the paroxysmal stage had been reached, and the drug selected was brought into use.

The ages of the cases treated varied from six weeks to twenty-six years. Three patients only had reached adult life. Five-sixths of the patients were under four years of age. One-half were under two years.

The duration of the attacks ranged from three to twenty weeks. From six to eight weeks was the usual duration. In several the attacks were so mild that a diagnosis was difficult. Two cases seen in private practice demonstrated how mild the course may be. The patients, brother and sister, aged six and eight years, commenced coughing about ten days after exposed. The cough was paroxysmal, from three to five seizures in twenty-four hours. The boy whooped three times during the entire course of the disease; the girl never whooped at all. Vomiting never occurred with a paroxysm. Both coughed six weeks. These children had neither adenoids nor bronchitis. It was found that the very young and the very delicate often do not whoop during a severe attack.

Among the severe cases, convulsions, hemorrhage from the nose, ears and eyes, were seen from time to time. A very

* Read before the Section on Pediatrics, the New York Academy of Medicine, February 8, 1900.

severe seizure in a girl nine months old was followed by small extravasations of blood into the skin over the entire body.

The drug treatment consisted in insufflation, internal administration, and inhalations. The treatment in which drugs do not enter was in the use of steam spray and fresh air.

Resorcin and boracic acid combined with bicarbonate of soda were used by means of insufflations in six institution test cases, and discontinued after three days. The treatment was impracticable and useless.

Inhalation in the use of the vapo-cresoline was used in ten institution test cases. It had no effect whatever in modifying the disease. In private practice, vapo-cresoline has sometimes a desired sedative influence upon the disturbed state of the nervous parents and does not harm the child. It has been used with my permission in many private cases.

Medicated steam inhalations, creosote, turpentine and wine of ipecac were used in many cases with decidedly beneficial results. The cases selected for the inhalations were with the complicating bronchitis in the very young and delicate, the steam being used in connection with other treatment.

The drugs selected for internal administration were alum, fluid extract of horse chestnut leaves, dilute nitric acid, hydrochlorate of cocain, bromoform, quinin, the bromids, belladonna, and antipyrin.

Alum, fluid extract of *horse chestnut leaves* and *dilute nitric acid* were each used in twenty institution test cases; after a trial of five days they proved valueless, or objectionable on account of producing vomiting and were discontinued. Alum appeared to be of some service but it was badly borne by the stomach. Bromoform was used in sixteen dispensary and six private patients. In three only did it appear to be of service. It could not be relied upon, and we stopped using it.

Hydrochlorate of cocain, 1-10 gr. every four hours for a child two years of age was employed in twenty-three dispensary and five private patients. It possesses some value in controlling the severity of the paroxysms, but the results were not sufficiently marked to warrant its further use.

Quinin.—I have used quinin in sixty cases, chiefly in private and out-patient work. I find that great benefit may be derived from its use if a large amount can be given. Its administration, however, is attended with difficulties. Twelve to

twenty grains in twenty-four hours are required for pronounced results in children from two to six years of age. The administration of this large amount of the well-known drug is not favorably received by many parents. Our inability to make it palatable is a serious drawback at any age and almost excludes its use in the very young. Further, in the very young and delicate it is very apt to derange the stomach and produce vomiting. The heavy syrups, yerba-santa, chocolate, etc., are of questionable value. In older children when quinin can be given in sufficient quantities in capsules, the improvement in the number and severity of the paroxysms is surprising. In seventeen cases I have been able to continue the use long enough for a trial. In fifteen of these, the number of the paroxysms was cut down one-third. In two they were reduced one-half.

Belladonna.—We had been told in the medical school, we had read in all the pediatric books that in belladonna we had almost a specific for whooping-cough. In the beautiful and innocent faith of the new physician, who had not yet shaken off all the medical student characteristics, we believed that in belladonna we had a remedy to be relied upon when other means should fail. We were strongly prejudiced in its favor. The drug was used in sixty institution test cases. It was begun at the height of the paroxysmal stage. It was administered to the point of physiological effect for a period of from five to seven days *without* influencing a single case of whooping-cough in the slightest degree. True the cases were all severe but responded promptly to other means used later. The children were all between three and seven years of age. I have repeatedly seen these children with dilated pupils and the characteristic belladonna blush grasping a crib or chair, going through a paroxysm that furnished an ideal clinical picture of the disease.

The Bromids.—Equal quantities of the bromids of soda, ammonium and potassium were used in sixty test institution cases. The results considered from all standpoints were better than with any of the means thus far referred to. The severity and duration of the paroxysms were especially influenced. The number of seizures was practically unchanged. From twelve to sixteen grains in twenty-four hours were given to a child one year of age. When given in syrup of raspberry on a full stomach or with plenty of water there is very little disturbance attend-

ing its use. For a child two years of age sixteen to twenty-four grains may be given daily.

Antipyrin.—This drug was used in sixty institution test cases later; in the institution, in out-patients and in private work I have given antipyrin (combined with bromid of soda) in over four hundred cases of pertussis. The antipyrin was given under the same conditions as those already referred to. Combined with syrup of raspberry it is readily taken and easily borne by the stomach, two very desirable requirements in a drug that is to be given for a considerable time to the young baby. It is not depressing when given with any degree of intelligence, in fact it is well borne by children when given in good sized doses, and it does control whooping-cough better than any other drug used by me. The case may be benefited as follows: The paroxysms are diminished in number from one-third to one-half without any amelioration of the individual seizure, or the seizures are less severe without any change in the number of the attacks. In some both the severity and number were favorably influenced. In all the cases, the disease was made easier in some way.

Antipyrin gave the best results. The bromids took the second place. We then combined the two remedies and used them in forty test institution cases. We soon learned that the two drugs given together more effectively controlled the disease than when either were given separately. In combination they have given satisfaction in the large number of cases previously referred to. At the out-patient department of the Babies' Hospital we use the drugs combined in the form of a compressed tablet. For a child eight months of age, one-half grain antipyrin, with two grains bromid of soda, is given at two hour intervals. For a child of fifteen months one grain antipyrin and two and a half grains bromid of soda at two hour intervals. Two and a half to four years, two grains antipyrin and three grains bromid of soda at two hour intervals.

Plain steam spray and fresh air.—These means are referred to only to call attention to their worth when used in connection with the drug treatment. Steam spray has been of a great deal of service in the very young and among those who have complicating bronchitis and bronchopneumonia. I prefer the Arnold steam atomizer. The nozzle is placed about eight inches from the face which alone is exposed, the other parts

being well protected by a rubber sheet. A spraying of from fifteen to twenty minutes every two hours often gives a weakly, cyanosed patient marked relief. I have used wine of ipecac, creosote and turpentine in the water atomized as mentioned before, but I am not convinced that they offer any advantage over plain steam.

Fresh Air.—It is surprising how little fresh air is appreciated as a means of relief in whooping-cough. How often we are told that the child rarely coughs when out of doors but commences as soon as he is brought into the house, which is usually overheated and badly ventilated. Nearly all whooping-cough cases cough worse at night. This may be explained in part by the absence of proper ventilation in the sleeping apartment. Many out-patient mothers tell me that remaining for hours with the child near the gas tank relieves the whooping-cough, and it doubtless does. There is a vast difference between the comparatively pure air in the vicinity of the gas tank and the air of the average tenement. I always encourage the gas tank treatment. A child who for any reason must remain indoors should not be allowed to remain constantly in one room. There should be two, the one not in use freely exposed with every window open. The living and sleeping rooms should be kept at a fairly even temperature from 68° to 70° F.

In conclusion: We have learned

1st. That every case of whooping-cough may be ameliorated either by modifying the severity or by diminishing the number of paroxysms. In many cases both the severity and number of the paroxysms may be favorably influenced.

2d. That remedies, sedative in character, with fresh air furnish the best results.

3d. That if a remedy is to be of service its beneficial effects will be noticed within twenty-four hours, always within forty-eight.

4th. That the best results are obtained when the antipyrin and bromid are commenced at the height of the paroxysmal stage, and then pushed.

5th. That these remedies being sedative in character, the effect may be lost in a prolonged case, requiring a change of treatment.

6th. That children may have whooping-cough and never whoop.

ARCHIVES OF PEDIATRICS.

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PERTUSSIS.

Letzerich, Afanassieff, and others have described a micro-organism found in the sputum of patients suffering with pertussis. It is not certain that this is the microorganism against which all treatment should be directed, as some of the severe symptoms in this disease, catarrh of the air passages and disturbances of circulation, are not influenced by bactericides. It is, however, because of the association of the paroxysmal cough with other symptoms that many plans of treatment find favor.

With one group of cases a medicine that lessens the frequency of paroxysms will be satisfactory, while with another

group the same drug will be only moderately successful. A drug that would destroy the coccus would be the ideal one, but it may be questioned whether such a drug would relieve the mucous membrane of its catarrh and the lungs of all the dangers of inflammation.

The bacteriological consideration in the treatment of pertussis has been given, with our present rather limited knowledge, a careful trial, and it has shown that such drugs as bromoform and antipyrin act in a way other than as germicides in the influence they have in lessening the number and severity of paroxysms in pertussis. It cannot be claimed that the disease does not go through the usual stages during the administration of one or the other of these drugs. The treatment that finds the most favor is the one that lessens the frequency of the paroxysms and ameliorates the severity of some of the symptoms.

Antipyrin does diminish the intensity of the paroxysms and lessens the frequency of severe attacks. Its sedative action is increased by the addition of codein or heroin. Antipyrin is a coal-tar derivative, and its effect on the circulation and on the blood must not be overlooked.

Bromoform has had a fair trial, and its effect is not sufficiently satisfactory to urge us to favor its use in all cases. Occasionally it does well, so well that its action is almost miraculous, but it may have no effect on the cough even in doses that are barely tolerated.

The bromids and chloral are drugs that deserve more extended use. The former for administration in the day time, particularly to nervous children who are greatly disturbed by pertussis, even when not of a severe type. Chloral will often insure a night of quiet when other means have failed.

In belladonna we have a most valuable agent, one that will, when given where there is congestion and swelling of the mucous membrane with a free secretion of mucus, ameliorate all

of the symptoms and be a successful means of treating many cases of the disease.

It is well to recognize that all of these drugs are symptomatic and we may have to combine with them other agents also symptomatic. We may give ammonia for difficult expectoration, alum for free mucus secretion and malt with cod-liver oil to sustain nutrition.

A patient with pertussis should not be allowed to go without treatment, and the condition of the child should receive careful attention as a specific has not yet been found that will prevent loss of strength and the danger of inflammation of the lungs.

Hygiene, environment, nutrition and other factors that enter so largely into the well being of a growing child, should be given detailed attention, for without this care a drug, no matter how serviceable, will often fail to relieve a patient with whooping-cough.

Hyoscin Hydrobromate in Chorea.—Rendle (*Indian Medical Record*, August 30, 1899), reports a case of acute chorea in a boy, sixteen years old, in which potassium bromid, chloral and arsenic failed to give relief. When admitted to the hospital he had constant and universal involuntary movements; the tongue was dry and brown, and was severely bitten; the temperature was somewhat elevated, the pulse was weak, and the respiration irregular. His condition soon became apparently hopeless. Hyoscin hydrobromate, in doses of $\frac{1}{200}$ of a grain, was given hypodermically twice daily, and was soon followed by improvement. The dose was increased to $\frac{1}{100}$ of a grain thrice daily, and within a week the movements had almost subsided. Subsequently Fowler's solution was used, and the patient made a complete recovery. The writer adds that chorea is rare in India, but usually fatal.—*Philadelphia Medical Journal*, Vol. iv., No. 23.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, February 8, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

HIGH FEVER FROM AN UNUSUAL CAUSE.

DR. LA FETRA showed some masses of blanket "fluff" which he had removed from a child's bowel by irrigations of the colon. The child, an infant of seventeen months, had been noticed by the mother to frequently pick the fluff off its crib blanket, but nothing was thought of this until the little one had been taken suddenly ill with a temperature of 104° F., and this material had been washed out of the bowel. It had been at first supposed that the fever was the result of the eruption of four incisor teeth, but the result of the bowel irrigation and the rapid subsidence of the fever under this treatment made the diagnosis clear.

THE TREATMENT OF WHOOPING-COUGH WITHOUT DRUGS.

DR. N. R. NORTON read this paper, the first of a series of three on the same subject. (See page 266.)

SOME REMARKS ON WHOOPING-COUGH AS SEEN IN DISPENSARY PRACTICE.

DR. WALTER A. DUNCHEL read a paper with this title. It comprised the results of his experience in the New York Dispensary with 261 cases of whooping-cough. The disease had been only a little more frequent in the winter than in the summer months. Complications (including bronchitis, if sufficient to cause physical signs) had occurred in 25.6 per cent., and the fact that 46 per cent. of these complicated cases had occurred in the months of January, July, and August led him to infer that in these months there was the greatest liability to such occurrences. As a rule, bronchopneumonia had been a late complication. In five instances there had been a relapse or recrudescence of the whooping-cough. None of the cases had presented evidences of cardiac complications. The comparative

infrequency of tuberculosis in this series led the speaker to suggest the possibility that the frequent and severe paroxysms of cough made it difficult for the tubercle bacilli to gain lodgment in the lungs. In the treatment of these cases he had secured the best results from belladonna. Antipyrin and bromid of sodium had been used in a few instances, but he had not felt that it was quite safe in this dispensary practice to push these drugs as they should be.

COMPARATIVE DRUG VALUES AS OBSERVED IN THE TREATMENT OF
752 CASES OF WHOOPING-COUGH.

DR. CHARLES G. KERLEY read this paper. (See page 270.)

DR. S. H. DESSAU opened the discussion on whooping-cough. He took the ground that the best therapeutic results would be obtained by those who shaped their treatment in conformity with the now generally accepted notion that whooping-cough is an infectious disease due to a specific germ. This had been his own plan for the past twenty years. He had found chloral very useful, and attributed its good effect not only to the sedation which it produced, but to its acting as an internal antiseptic. He had finally abandoned the combination of chloral hydrate and the bromids because of its nauseous taste and the fact that a powerful rival had been found in antipyrin. This drug was particularly useful because of its solubility. Phenacetin had a similar action, but being insoluble, it was necessary to administer in powder, a form that was objectionable to children. He had found cresolen and similar preparations useful, probably because they were antiseptics. A very recent treatment was by inunctions of an antiseptic known as difluor-diphenol. The author of this treatment claimed decided benefit after using the ointment for a day or two, and a complete cure in about two weeks. The fact that the lymph nodes at the root of the lungs were enlarged in cases of pertussis had given rise to the theory that the disease was dependent, not upon an infection, but on pressure produced by these enlarged nodes on the recurrent laryngeal nerve. It was true that when these nodes were enlarged, one often observed a spasmodic, paroxysmal cough closely simulating whooping-cough, yet, in his opinion, this class of cases was entirely distinct from whooping-cough; they were the cases of so-called whooping-cough which the Germans

were so fond of "curing" by a mixture of iodid of potassium and belladonna.

DR. G. M. SWIFT spoke of the continuance of whooping-cough for long periods after the active symptoms of this disease had subsided. Months afterward he had observed secondary results, such as enlargement and degeneration of the mediastinal lymph nodes. He was a thorough believer in the efficacy of fresh air in the treatment of this malady. He had also observed good results in a few cases from allowing a 25 per cent. solution of formalin to evaporate spontaneously in the child's room. He had also seen good follow the use of codein and of heroin, particularly the latter. He was opposed, on principle, to the use of the coal-tar preparations because of their deleterious action on the blood.

DR. JAMES J. WALSH recalled the fact that it was a common tradition in the mining districts of Pennsylvania, shared by some of the old medical practitioners, that children suffering from pertussis were benefited by being taken down into the coal mines. Personally, he was disposed to explain the good effect by the necessity for the child breathing an abundance of fresh air on its trips to and from the mine. The speaker also referred to an interesting and as yet unpublished experiment which one of his friends had made in Philadelphia. Five persons suffering from pertussis had been injected with serum obtained from the blood of a healthy person who had pertussis about twenty years previously. The experimenter had noted improvement in all of the cases, and in three the whooping had ceased almost immediately. Such an experiment was certainly suggestive.

DR. HERMAN said that in the Good Samaritan Dispensary the best results had been obtained in children of two years from the administration of a mixture containing in each dose two grains of antipyrin, one minim of tincture of digitalis, and four minims of paregoric. In his service at the Mt. Sinai Hospital Dispensary he had carefully compared the action of antipyrin and heroin, with the result that the paroxysms had been far better controlled by the antipyrin.

DR. WALTER LESTER CARR had also secured the best results from antipyrin; and as he had found heroin rather disappointing, he had combined codein with antipyrin. He had not found that the bromids always diminished the number of the paroxysms, though they had rendered the patients less liable to severe spas-

modic attacks. He had succeeded fairly well with belladonna, but was of the opinion that it was chiefly efficacious in cases marked by a great congestion and engorgement of the mucous membrane and free secretion. Undoubtedly, in cases of long standing the mucous membrane became thickened and the bronchi altered in structure. For these reasons the physician should be cautious about calling such cases simple examples of pertussis of unusually long duration, for not infrequently it would be found that there was some serious disease of the lungs present, such as enlarged lymph nodes, thickened bronchi, etc. Occasionally, in these prolonged cases the paroxysmal cough would be found to depend upon swelling and hypertrophies in the upper air spaces, and would disappear by the use of oil sprays containing menthol. Hardly too much could be said in favor of fresh air as a means of allaying the severity of whooping-cough, but exposure to cold winds and dust should be avoided. From his observations of the effect of carbonic acid gas in the treatment of tuberculosis, he would not advocate it for pertussis.

DR. HENRY W. BERG said that there was always in whooping-cough a source of irritation to be found in the presence of viscid mucus in the air passages; hence an effort should be made to remove this irritation. At one time, while treating a case of membranous croup occurring in a child suffering from whooping-cough, he had noted that under the free use of bichlorid of mercury the whooping had markedly diminished. Since then he had made it a practice to give to a child of two years 1-60 of a grain of bichlorid of mercury every three hours until the bowels became loose, and then to suspend the remedy until the bowels were no longer relaxed. He had secured very good results from this medication in cases of pertussis, so much so that he now rarely treated a case in private practice for longer than two or three weeks. He would indorse what had been said about the efficacy of fresh air in whooping-cough, but in doing so would utter a word of caution against advising all mothers, regardless of their degree of intelligence and judgment, to take their children out in the open air, for this practice was not free from danger if proper discretion were not exercised as to the state of the weather and the time selected for such exposure.

DR. NORTON, in closing, said that while not enthusiastic concerning the treatment of whooping-cough with carbonic acid gas, he desired to place on record the fact that individual cases had been benefited by this treatment, and the paroxysms had again become severe on purposely suspending the use of this gas.

DR. KERLEY, in closing, said that he was accustomed to treat idiopathic croup as he did pertussis, only combining ipecac with the antipyrin. If this medication were begun early and pushed vigorously emesis would rarely be demanded.

The Influence of Food on the Age at Which Babies Begin to Walk.—Chaumier (*Klinisch-therapeutische Wochenschrift; Indian Medical Record*) has investigated 1,220 cases. At the age of ten months only 5.6 per cent. of bottled-fed babies could walk, whereas 12.7 per cent. of breast-fed babies could. At eleven months 12.3 per cent. of bottle-fed, but 21 per cent. of breast-fed babies walked. At twelve months 22 per cent. of the bottle-fed and 40 per cent. of the breast-fed babies walked. At the age of two years the figures are 91.7 per cent. of hand-fed and 97.8 per cent. of breast-fed babies.—*The New York Medical Journal*.

Ulcerative Stomatitis.—Kissel advises, in the *Progrès Médical*, to rinse the child's mouth every hour with a 3 per cent. boric acid solution and rub twice daily the entire buccal cavity, and particularly the gums and ulcerated parts of the mucous lining of the cheeks, with a plug of cotton wet with the same solution. Cod-liver oil is prescribed, and before commencing treatment, unsound teeth should be extracted. Under this treatment ulcerations are said to disappear in from six to ten days. In private practice, when such minute attention is not possible, the author, after extracting the teeth, as before, cures the ulcerations to the bottom, then with a finger enveloped in gauze he rubs iodoform powder into the ulcerated surfaces. The buccal cavity is cleansed twice daily with a tampon of cotton wet with boric acid solution, and the mouth is rinsed hourly with the same solution.—*The Journal of the American Medical Association*, Vol. xxxiv., No. 3.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON ORTHOPEDIC SURGERY.

Meeting of February 16, 1900.

A. B. JUDSON, M.D., CHAIRMAN.

DISEASE OF THE HIP.

DR. T. H. MYERS presented a boy, fifteen years of age, who had been before the Section on March 19, 1897, when convalescing from extensive osteo-myelitis of the upper part of the femur of seven years' duration. The onset had been with acute fever and a joint absolutely rigid from reflex muscular spasm. Although five inches of the shaft was found denuded of periosteum, excision was not done, and the treatment had been by long-continued wearing of the traction splint with occasional curetting. In March, 1897, there was wide motion in flexion and extension, three-fourth inch lengthening from the anterior superior spinous process to the internal malleolus, and treatment was discontinued. In February, 1899, there was abscess of formation at the scar, and the medullary canal was curvetted 5 inches downward from the trochanter. In March, 1900, the scar was found to be firm, there was free motion in flexion, adduction and rotation with no reflex spasm, and measurements gave neither lengthening nor shortening. During the period of irritation, preceding 1897, while the limb was bandaged and kept from the ground by the hip splint, it grew faster than the well limb, with resulting asymmetry in length of three-fourth inch, which disappeared in the sub-acute period in which the limb had been free from the restraints of treatment and freely used. The gait was normal with normal locomoter ability.

LATERAL CURVATURE THE RESULT OF INFANTILE PARALYSIS.

DR. TOWNSEND presented a boy, five years old, who had worn plaster-of-Paris jackets for three years for weakness and deformity of the spine. When first seen he could not stand or sit erect from disability of the muscles of the back, evidently the result of infantile paralysis. When presented, he was able to hold himself up without the jacket. Rotation was very evident in prominence of the angles of the ribs on the left side and flattening of the chest wall in front on the right side.

DR. V. P. GIBNEY found that the left side measured from the centre of the chest to the spinous processes 9 inches, the right $8\frac{1}{2}$ inches.

DR. JUDSON found that the left arm measured $6\frac{1}{8}$ inches in circumference, the right 7 inches, supporting the diagnosis of infantile paralysis. He said that as rotation produced not only prominence of the angles of the ribs, but also of the left scapula the curve was to the left and included a large part of the column with but little if any compensating curve. These marked prominences allowed extreme degree of curvature in the bodies of the vertebræ coincident with slight curvature in the spinous processes.

DR. MYERS said that in these extreme cases regular exercises should be given to promote development of the muscles, especially those of respiration, and apparatus should be designed in such a way as to reduce restriction of the trunk to the lowest point compatible with the required support.

DR. SAYRE said that his experience with similar cases led him to rely for necessary support on apparatus that went all the way around the child, in order to prevent a great increase in deformity. In the case of the patient presented, he thought benefit would be gained by having the support go higher and take in the head. Although the plaster jacket might be heavy the child would be able to do hard work in it and was more comfortable than with apparatus constructed of wood, leather, silicate or any other material so applied as not to extend all the way around. In suitable cases regular systematic exercises would develop the muscles and prevent the ill effects which might come from undue restriction.

DR. TOWNSEND said that the proper application of a restricting brace to a growing child was not an easy thing, especially as the parents, in the absence of urgent symptoms, would not bring the child oftener than once in three or four months. As the patient was gaining strength, he believed that in time the treatment should include regular exercises.

DOUBLE LESIONS OF THE KNEE IN CHILDREN.

DR. TAYLOR presented a girl eighteen months old, who had suffered since July, 1899, with what appeared to be rheumatoid arthritis of both knees, which had been swollen and stiff and tender. They were flexible considerably beyond 90 degrees,

but were limited in extension, the left to 120 degrees and the right to 130 degrees. Two of the finger joints were similarly affected. A rheumatic or specific family history had not been found.

He also presented a girl, six years of age. Two months ago, without known cause, heat and swelling had appeared in both knees. When first seen, on January 29, 1900, there was effusion with heat, pain and swelling, and the child walked with some difficulty, especially after sitting for a while. The knees were extensible to 180 degrees and flexible a little beyond 90 degrees.

DR. R. A. HIBBS said that the inflammatory condition present indicated the application of immobilizing apparatus.

DR. JUDSON said that the sub-acute character of the inflammation called for protection of the joint from the weight of the body. In a case in which a single member was affected the limb could be made pendent by an apparatus which would throw the burden on the unaffected limb, but when both the knees were inflamed this mechanical resort failed. He suggested that standing and locomotion be avoided so far as it could be done, with the expectation that the ultimate result would be favorable through general treatment and healthy growth.

DR. G. R. ELLIOTT said that the bilateral involvement argued constitutional infection and that the facies and the peculiar conical appearance of the fingers which narrowed down to a point, with an enlargement that did not belong wholly to the joint indicated syphilis rather than rheumatoid arthritis.

DR. SAYRE said that the possibility of syphilis was suggested by the facial appearance, and expression of the baby and by the presence of phalangeal periostitis. He favored experimental anti-syphilitic treatment.

DR. MYERS said that rheumatoid arthritis was unusual so early in life, and in adults a long period of rigidity and pain generally preceded the appearance of swelling of the larger joints. He thought that the smaller child was affected with syphilis rather than with rheumatoid arthritis.

DR. TAYLOR said that the appearance of the knees and the implication of several finger joints had inclined him to the opinion that it was a case of rheumatoid arthritis which, although rare, was not unknown at this early age. If inunctions and cod-liver oil internally produced no good effect, anti-syphilitic medication would be tried.

TRANSPLANTATION OF TENDONS.

DR. TOWNSEND presented a boy, fourteen years old, on whom he had operated for the relief of disability of the hand accompanying right hemiplegia the result of cerebral palsy in infancy. The right heel cord had been cut several years before. He had never had useful control of the right hand which was a typical claw hand. The fingers were flexed on the palm, with slight ability to extend, and the hand was sharply flexed so that its dorsum was nearly at a right angle with the forearm, with no ability to extend the wrist. The fingers had no power to grasp on account of the position in which the hand was held. The object of the operation was to correct the flexion at the wrist and restore the power of grasping to the fingers, by shortening the extensor tendons and attaching to them the cut ends of certain flexor tendons passed through the space between the radius and ulna.

On December 21, 1899, through an incision on the flexor surface of the wrist, the tendons of the flexor carpi radialis, the flexor carpi ulnaris and the palmaris longus were divided by scissors just above the annular ligament and silk threads were stitched to the ends to prevent their withdrawal upward out of reach. The tendon of the extensor communis digitorum was then exposed about $1\frac{1}{2}$ inches above the wrist by an incision on the dorsal surface. It was folded on itself twice, to shorten it, and between the folds the cut ends of the flexor tendons passed through from the flexor surface, were attached by catgut stitches. The wounds healed per primam, except at one little spot which closed in ten days. The fingers were kept extended in splints for six weeks to insure union of the tendons. The result had been a hand held perfectly straight in a position of extension with power to extend and flex through an arc of about 20 degrees, and the restoration of a fair grasp to the fingers, a condition subject to probable improvement by use, massage and electricity.

DR. GIBNEY said that it would be difficult to prevent adhesion from taking place in the interosseous space and even if the tendons did not adhere they might be so constricted as to interfere with the action of the muscles. In an operation already planned he would try to make the space larger by a series of sutures through and through, making the opening large enough so that there would be no binding of the tendon. With large push

needles, such as were used for deep sinuses, he believed he could push the needle through the tissues from the other side, back and forth and get a large enough space to pass the tendons through very easily.

DR. ELLIOTT said that the result was excellent. He believed, however, that the gain was one chiefly by improved position, due to the folds which had been made in the extensor communis tendon, thereby taking up the slack. Cutting off the three tendons and passing them through between the bones simply had transferred their flexor points of attachment to the cicatrix. They had already grown fast. The same result, or better, would have been accomplished by simply cutting the three tendons, thus getting them away from the wrist and allowing them to reattach themselves as in retreating tenotomies on the eyes.

DR. MYERS had noticed that extension of the wrist was caused, at least in part, by the voluntary action of the extensors. Holding the boy's arm he had felt contraction of the extensors accompanying an effort to extend the wrist. The shortening of the extensor communis would give the other muscles a chance to recuperate.

DR. GIBNEY said that when the electrode was placed over the flexor muscle the action was on the cicatrix; there was no extension of the wrist.

DR. MYERS said that a return of voluntary motion sometimes preceded return of the faradic reaction.

DR. TOWNSEND said that the application of electrodes to the flexor carpi ulnaris produced contraction below the scar on the extensor side. The boy had already acquired control of a pen and was learning to write and anxious to use the hand all the time. The progress of the case would tell whether the possibility of adhesion of the tendons would be a real or fanciful difficulty.

DR. GIBNEY said that in some recent operations the tendons had not been transplanted but simply shortened by taking loops in them. The result had been a little increase in power and the hands had been prevented from going over so far in flexion. He thought that operations on tendons promised a great deal in old hemiplegias and hemispastics.

DR. JUDSON said that they would be more likely to achieve permanent improvement in the upper than in the lower extremity. In the latter the great strains incident to locomotion would make ultimate success uncertain.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, January 9, 1900.

DR. E. E. GRAHAM, PRESIDENT.

A CASE OF CONGENITAL HEART DISEASE OBSERVED IN A GIRL AGED ELEVEN YEARS.

DR. HAMILL.—The girl was perfectly well until seven years of age. Since then she has lost flesh gradually but persistently. Her previous history includes an attack of measles and three sharp attacks of follicular tonsillitis during the past three years. She suffers from disturbed digestion, dull, aching pain in her head, cardiac palpitation and dyspnea on slight exertion. The last two symptoms are the most persistent and annoying. She has never had any hemorrhages. There is no clubbing of the fingers or toes, and no history of cyanosis. The apex beat of the heart is in the fifth intercostal space, just within the mid-clavicular line; it is fairly forcible. Over the pulmonary area can be felt a late systolic thrill which is followed by a distinct diastolic shock. The area of cardiac dulness begins above at the second rib, to the right, an inch to the right of the right edge of the sternum and to the left just outside the mid-clavicular line. Auscultation shows a slight short roughening of the first sound at the apex and in the second left interspace, close to the sternum, a rather low-pitched, prolonged, late systolic murmur which is heard, though much less distinctly, in the first interspace, and is followed by a loudly accentuated pulmonic sound. The heart's action is regular and rapid. The lesion giving rise to these signs is probably a congenital pulmonary stenosis accompanied by persistent ductus arteriosus. As against its being of post-natal origin is the extreme infrequency of lesions of the pulmonary orifice occurring after birth and the marked accentuation of the pulmonic sound.

DISCUSSION.

DR. F. A. PACKARD.—I quite agree that this is a case of pulmonary stenosis. I very much doubt if we have a right to call it congenital heart disease. The absence of cyanosis and of clubbing of the fingers, while never essential to the diagnosis of congenital heart disease, certainly points against it. There is such a large number of instances of pulmonary stenosis in children apparently not congenital that I think we ought to be on

our guard in this class of cases against thinking that, because the right side of the heart is affected, it is therefore a case of intrauterine infection. I have looked into the subject of pulmonary stenosis during the past year with considerable interest and am surprised to find how many cases are recorded. Dr. Hamill says the child has had repeated attacks of tonsillitis; it has happened to me to see a series of cases of endocarditis following tonsillitis, and in several of the cases that I find in literature the endocarditis has affected the pulmonary valve. There was an example of this in Chanier's fatal case, where the connection between endocarditis and tonsillitis was perfectly plain.

There is an interesting physical sign, the accentuation of the second sound on which Duroziez laid particular stress in attacks of pulmonary stenosis. This case presents that condition typically.

DR. S. M. HAMILL.—I was under the impression that Duroziez's observations with reference to accentuation of the second pulmonary sound referred exclusively to cases of congenital heart disease. The presence of an accentuated pulmonary sound would lead me to suspect a congenital rather than a post-natal lesion. I cannot conceive of the method of production of an accentuated second sound in the presence of a true post-natal pulmonary obstruction. I was much interested to hear Dr. Packard say that there seemed to be a special tendency toward the development of endocarditis of the right side of the heart in cases following upon an attack of follicular tonsillitis. I would like to ask him what explanation of this he has to offer.

DR. F. A. PACKARD.—I do not mean to say that endocarditis of the right side of the heart preponderates in those cases following tonsillitis, but that there are a great many such cases.

DR. J. P. CROZER GRIFFITH read a paper on "Miliary Scarlet Fever with Report of a Case."

DISCUSSION.

DR. ARTHUR VAN HARLINGEN.—I do not feel prepared to discuss the question of miliary scarlatina, but it has occurred to me to mention some differential points regarding miliaria and sudamina which may throw light on the diagnosis. Miliaria alba et rubra is not necessarily an inflammatory affection of the sweat glands, but one of the skin, especially around the duct

orifices. It is probably a form of eczema due to heat, irritating clothing, acrid sweat, etc., and is situated in a sweat duct orifice area, as that is the part most hyperemic or deranged in circulation. The evidences of the disease consist of small papules which may easily rise to vesicles as it did in this case. Sudamina is entirely different. It is not an exudative affection but is composed of minute watery accumulation which is seen on the skin as simply a sweat drop confined at the opening of the sweat gland, the result of a hyperidrosis. Dr. Griffith has said very little about sudamina and I would like very much to know if he considers that the two diseases occurred together in any of his cases. I can imagine that sudamina would occur in connection with scarlet fever as with numerous other eruptive diseases, and yet not be necessarily connected with the disease itself. It may occur as the result of hot clothing, or from circumstances which give rise to excessive perspiration.

I would suggest that in the further examination of similar affections they should be differentiated.

DR. J. F. SCHAMBERG.—During the past few years I have been making certain observations along this very line, upon the character of the rash in scarlet fever in general and this miliary eruption in particular. I think Dr. Griffith has done well to emphasize the fact that many authors in text-books have labored under a delusion in calling these lesions sudamina. As Dr. Van Harlingen has said, the eruption in sudamina consists of dewdrop-like vesicles, non-inflammatory and differing markedly from the lesions seen in scarlet fever. It is also important not to term these vesicles miliaria, because the term is used to designate a common eruption known as prickly heat.

I have recently made some microscopic sections of the skin upon which these vesicles were present. Instead of there being merely an overfilled state of the blood-vessels there is more than that in some cases of scarlet fever, there is actually an outpouring, resulting in a circumscribed collection of serum which we see microscopically as a cystic vesicle in the deepermost layers of the rete mucosum, and which we recognize clinically as a small miliary vesicle.

I am inclined to believe that the greater the intensity of the rash, the more vesicles do we find; although we may find vesicles in cases in which there are quite slight rashes. In one or two hundred cases, however, the greatest number of vesicles

seemed to occur in those cases in which there are severe eruptions. The greater the number of vesicles present, the greater the desquamation. Frequently one does not see the vesicles present because one does not look sufficiently close; often on close scrutiny, with the naked eye or a magnifying glass, one will be able to see minute vesicles previously undiscovered. The desquamation of scarlet fever occurs in quite a peculiar manner, at least upon the body. In the majority of cases it begins as a number of pin point, powdery specks, corresponding to the desiccated summits of the miliary vesicles. Then there is a raising up of the surrounding cuticle producing minute jagged rings or collarettes. These rings meet with other rings enlarging peripherally and we have patches thus formed which are gyrate or geographic in outline. In this manner the entire superficial layer of the epidermis is raised off. Upon the hands the desquamation differs because the anatomical structure differs, the horny layer of the epidermis being much thicker than elsewhere.

Desquamation is much the same in those forms of toxic dermatitis which simulate scarlet fever.

DR. J. M. TAYLOR.—I should like to ask Dr. Schamberg whether a statement which I have seen somewhere is correct: that the eruption of scarlet fever has a tendency to group itself about the hair follicles? In cases which I have seen it has seemed to me that that was oftentimes noticeable. I should further like to know whether he considers this peculiarity of value in a differential diagnosis?

DR. J. F. SCHAMBERG.—In a section recently excised, which represented a small reddish punctum on the skin, I found that it corresponded to a hair follicle surrounded by a round cell infiltration; but I shall be obliged to examine more sections before I am able to say that the punctated appearance is due entirely to an inflammatory condition around the hair follicles. It is common to note a goose-flesh appearance around the hair follicles, but this is not inflammatory.

Current Literature.

DERMATOLOGY.

Crocker, Radcliffe : A Case of Recurrent Summer Eruption. (*The British Journal of Dermatology.* No. 134. 1899.)

A boy of fifteen years had a recurrent summer eruption from which he had suffered for three successive years. The first attack came on twelve months after the removal of scrofulous glands from the neck. He has five brothers and two sisters, and one of his sisters had also suffered from a recurrent summer eruption, but with different characters, "something like nettle-rash, but red." It lasted from the age of nine to nineteen.

The eruption on the patient was most developed on the face and back of hands, the face had the aspect of a well-marked prurigo, being covered thickly with slightly scabbed papules. The extensor aspect of the forearms had stains, larger scabbed lesions and flat papules exactly like lichen planus, but evidently the last stage of acuminate papules, and some patches of horny thickening. There were a few lesions on the flexor aspect. The buttocks and back of the thighs were thickly covered with stains and lesions, some of the lichen planus type. There was nothing on the trunk above the buttocks, and only a moderate amount below the knees, both back and front, and on the arms it only extended for three inches above the elbows. The eruption commences as vesicles without redness, round, the size of a millet seed, later they become pustular with a narrow areola, he scratches them, and then scabs form. It is chiefly excited by the sun, but east winds also bring it out. His general health is now very good, he has a hearty appetite and good muscular strength.

The character of the lesions was not like the majority of the cases described.

MEDICINE.

Pernet, George : The Offspring of Congenital Syphilitics. (*The British Journal of Dermatology.* No. 134. 1899.)

A boy, aged five, attended the clinic for a bromid eruption, chiefly affecting the right calf. He had had whooping-cough, for which he had been treated.

The Child is well nourished but rather small for his age, pale, and slight in build. According to the mother, he was "a

lovely child" at birth. He has: Convergent strabismus, especially marked in left side; otherwise the eyes are normal; very good teeth; arch of palate rather high and narrow. Nose a little pinched. No deformity of bones or body generally. Further, the child enjoys pretty good health as a rule, and has a fair appetite. He appears somewhat dull mentally.

The Mother, aged forty-four, undoubted aspect of congenital syphilis. Double keratitis of long standing; can just see with right eye, which is less affected than the left. Very marked saddle-shaped nasal depression; bulgy forehead; old scars about the mouth, chiefly radiating from the upper lip, and giving it a pursed-up appearance. The teeth do not present the typical Hutchinson's deformity. The upper incisors: small, square, with large spaces between them. The lower teeth are small, but fairly close together. All the teeth are poor in quality. Hearing, normal. Intelligence good.

Mother's Family History.—She is the eighth and only surviving child of her mother's first husband, who died at about the age of thirty from rapid consumption; he had had the "bad disorder." By her second husband, her mother had three children: two still living, and one (the last) who died twenty-four hours after birth (cause unknown); the mother herself dying at fifty-four from softening of the brain.

Mother's Personal History.—Married eight years. Her husband blind, but quite well. Seven pregnancies:

- 1st. Full term child: died three days after birth.
- 2d. Miscarriage: sixth month.
- 3d. Twins: both females. Miscarriage: sixth month.
- 4th. The child described above.
- 5th. Miscarriage: third month.
- 6th. Miscarriage: third—fourth month. (?) Twins.
- 7th. Miscarriage (month not stated in notes).

The Father, aged fifty-two, more or less blind since 1883. Blindness came on suddenly whilst working, went off, then returned. Became quite blind after 1884. This patient was examined at his home: Right divergent strabismus. Upper teeth all gone; lower ones bad. Quite blind. Optic atrophy. *Tumor cerebri.* No evidence of either congenital or acquired syphilis. Remains of old acne.

Family History.—Father died, aged thirty-five; cause unknown. Mother living, aged fifty-nine; paralyzed left side,

suffers from epileptic fits, with loss of speech lasting a day or two. Three brothers; all died in infancy. Two sisters; both healthy. The patient took iodid of potassium gr. viii., increased to gr. xv. and gr. xx. ter in die. He improved.

Conclusions.—The striking point about the foregoing is the fact that out of seven pregnancies the congenitally syphilitic mother gave birth to only one full-term living child. There is not sufficient evidence to show definitely that the father has suffered from acquired syphilis. As to the child, the boy is a weakling, but his unhealthy surroundings in a great city and the poor circumstances of his parents, able only to earn a precarious livelihood, must be taken into account as factors. The histories emphasize the importance of the part played by syphilis as a destructive agent in the nation.

Symes, Langford: On the Examination of Sick Children.

(*Dublin Journal of Medical Science.* Third Series, No. 337.)

The author advances a plan of examination by which the whole body may be examined without removing the physician's hands after they have been once laid upon the child. It is a matter of great importance to get the history which, as a rule, can be ascertained only from the mother or person in charge. After obtaining this, the order of examination will be first the observation of the head and face, and then, the child being entirely stripped, the hands of the physician are passed over the body for the complete examination of all the organs. The article gives comprehensive directions for the examination of each particular organ.

Edsall, Frank H.: Some Cases Bearing Upon the Peripheral Causation of Epilepsy. (*Medical News.* Vol. lxxv., No. 21.)

A report of cases of epilepsy accompanied by ocular insufficiency is made. These patients have been relieved by glasses. Two of the cases occurred in young girls previous to but near the age of menstruation, the other in a boy about the age of puberty. All the patients showed a considerable degree of refractive error, the first a high degree and troublesome form. All were about that period of school life when the work entailed is most confining and the resultant eye strain most troublesome. It is most likely that all cases of epilepsy are dependent upon a central lesion of some sort, though this lesion may be so

fine as to be difficult of detection and of itself be unable to provoke the characteristics of this affection, the peripheral neurosis simply furnishing the determining factor producing it. The author does not believe that eye strain from any cause is responsible for the status epilepticus.

Johannessen, A.: **Hypertrophic Dilatation of the Large Intestine in the Child.** (*Rev. Mens. des Mal. de l'Enfance*. Vol. xviii., No. 2.)

Three cases were observed, all boys, aged respectively fourteen months, eighteen months and two and one-half years. The symptoms were much alike, and the clinical picture resembled very closely that described by Hirschsprung and others. Immediately after birth paresis of the intestine was noticed, the stools becoming very irregular, so that intervals of from two to thirty-three days occurred between them. The abdomen became distended, in one case measuring 72 cm. Attacks of diarrhea alternated with the constipation, and vomiting was less common than one would suppose. The general condition remained relatively good, and only one of the children died. At the autopsy the large intestine was distended so that its diameter was that of a man's arm, and the walls of the cecum and colon were much thickened; there were superficial ulcers on the mucous membrane.

The condition of hypertrophy and dilatation of the colon is a congenital anomaly similar to excessive development of the fingers, nails, etc., and is dependent upon the presence of certain bends in the sigmoid flexure. The ulcerative colitis was due to infection of the mucous membrane, whose resistance had been greatly diminished by the stagnant fecal matter.

Thiry, Ch.: **A Case of Tuberculosis of the Myocardium.** (*La Presse Médicale*. 1899. No. 104.)

While tuberculosis of the myocardium is not quite so rare as valvular tuberculosis, it is much less frequent than tuberculous pericarditis. To the 43 authentic cases in medical literature, the author adds that of a five months' old boy of phthisical family, and bottle-fed, who died in an advanced state of athrepsia. There was cough, but no gastroenteritis. The autopsy showed tuberculosis of the lungs, bronchial lymph nodes and pia mater. In the right ventricle of the heart, underneath the posterior segment of the tricuspid valve, was a cheesy nodule

involving the myocardium, the free border of leaflet and a chorda tendinea. The cheesy centre of the mass contained tubercle bacilli, and a guinea-pig inoculated with it died of general tuberculosis within one month. Microscopical examination of the baby's heart showed that the nodule lay in the myocardium, covered by endocardium, and composed of a fibrous periphery and a cheesy centre.

Tuberculosis of the myocardium is most common in young subjects. It is rarely primary. In this case the pericardium and pleura were normal, and the pulmonary lesion was more recent than that of the myocardium; but the trachobronchial lymph nodes were cheesy, and were undoubtedly the primary lesion.

D'Astros, L.: Thrombosis of the Basilar Vein and the Syndrome of Weber in the Course of Tuberculous Meningitis. (*Arch. de Méd. des Enf.* Vol. iii., No. 2.)

A boy of thirteen years, of phthisical family, developed a fatal tuberculous meningitis following lung symptoms. An interesting feature of the disease was the appearance of a right-sided hemiplegia, with left oculomotor paralysis—the syndrome of Weber. The paralysis developed within twenty-four hours, and a diagnosis of softening of the left cerebral peduncle was made. This was confirmed at autopsy; and thrombosis of the basilar vein was found, as well as tubercles in the pia mater, right lung and bronchial lymph nodes.

Gaudier: Acute Tuberculosis of the Middle Ear. (*Gaz. des Maladies Infantiles.* 1899. No. 51.)

A boy of five years had an otitis media following an angina. There was a large fungoid mass in the auditory canal, and an operation showed the bone to be soft, friable and filled with large fungosities, a mass of which later burst through the wound and attained the size of an orange. Guinea-pigs inoculated with portions of this mass died of general tuberculosis. The boy died with symptoms of meningitis and pulmonary tuberculosis.

Among 21 cases of fungoid otorrhea the author has only seen two tuberculous cases, which seem to be rare and difficult to diagnose. Stress is laid upon the rapidity of the development of the fungosities and the persistency with which they return after removal.

Hotz, F. C.: Primary Tuberculosis of the Conjunctiva.
(*The Journal of the American Medical Association.* Vol. xxxiv., No. 3. 1900.)

A child, five years old, presented an unusual affection of the conjunctiva, which was diagnosed as primary tuberculosis. No tubercular history, nor specific history was obtainable. The child had scarlet fever when three years of age, and two years later had diphtheria. About seven weeks before the case was exhibited the mother noticed in the lower right quadrant of the right eye a slight injection of the bulbar conjunctiva which gradually increased until the entire bulbar conjunctiva was involved. One week after the beginning of the trouble, there was first noticed a swelling of the pre-auricular lymph node, and later the nodes at the angle of the jaw on the side corresponding to that of the affected eye became swollen. When seen, the whole right side of the face was considerably swollen, the swelling due chiefly to an enlargement of the submaxillary and pre-auricular lymph nodes. The lids showed slight edema, and on everting the lower one, the conjunctiva looked granular and deep red. The ocular conjunctiva was swollen all around the cornea, particularly the lower right quadrant, which showed decided elevation, due to dense lardaceous infiltration, and on the top of this elevation was an irregular yellowish patch, evidently due to ulceration, with a rough surface, as if little holes had been pricked into it. Upward and downward, following the margin of the cornea, and at a little distance from it, was noticed a number of yellow punctiform infiltrates; there was also some mucus secretion. The swelling of the cheek has decreased materially, and the enlargement of the submaxillary lymph nodes has decreased so much that now only small nodules are felt. The pre-auricular lymph node, first noticeable by its enlargement, has also been reduced in size to a great extent. The condition of the ocular conjunctiva has not changed materially. From the clinical picture the diagnosis of tuberculosis of the conjunctiva was made. Bacteriologic examinations, made on several occasions, have shown the tubercle bacillus.

The treatment consisted simply in boric acid irrigations every morning and evening, and in the application of iodoform powder upon the conjunctival ulcer. Hotz inquired whether it would be a proper procedure to submit the patient to tubercular

treatment, believing it had never been used in such cases. So far these cases have been treated by curettement of the ulcers, or by cauterizations with or without the curettement; also iodoform has been used. The danger is the extension of the general infection. The case is of interest, as the affection is not very common, this being the first typical case that has come under the reporter's observation.

Pusey, W. B. : A Report of 276 Intubations. (*The American Practitioner and News.* Vol. xxviii., No. 46. 1899.)

Of the whole number of cases 134, or 48.5 per cent. recovered.

There were 35 under two years of age, of which 23 recovered, a percentage of 65.7.

The youngest of the cases were eight months of age; of these there were 4, 3 of which recovered. There were 3 others under one year of age, with 2 recoveries. Nearly all of these children were at the breast or bottle-fed, which fact certainly had something to do with the very satisfactory results.

There were 44 cases two years of age, with 18 recoveries, or 40.9 per cent. Between three and four years there were 105, with 46 recoveries, or 43.8 per cent. Between five and seven years there were 78, with 38 recoveries, or 48.7 per cent. Between eight and nine years there were 12, with 7 recoveries, or 58.3 per cent. Between ten and twelve years there were 2, with 1 recovery, or 50 per cent.; and over twelve there was 1 who recovered.

In the last 70 cases in this report antitoxin was, with few exceptions, given. The greater number of them were seen only when the relief for laryngeal stenosis was imperative. In some the antitoxin had already been given, but had apparently had no effect in staying the progress of the trouble. In others, whose condition demanded immediate relief, the antitoxin was given after the insertion of the tube, and in these cases the tube was removed on the third or fifth day, whereas without the antitoxin it would have remained in from five to eight days. There have been several of these cases in which antitoxin was given where the tube has become occluded by the membrane. In 2 cases the tube was removed after death, and found closed by the membrane, and in 1 case the tube was removed when the patient was all but dead, and from the

condition of the tube it seemed that what air entered the child's lungs must have gotten in around the tube.

In many cases of membranous laryngitis the necessity for operative interference could be obviated by the administration of antitoxin, if given early enough. The most common accident that has occurred in this series is the pushing of the membrane down before the tube. It has happened several times, but in one case only was it attended by serious results.

It sometimes happens when the tube is removed that the stenosis recurs, and it is necessary to reintroduce the tube.

In a number of cases in this report the tube was reintroduced from one to twelve times, but in one case only was it impossible to leave it out. This was a case, three years old, of malignant diphtheria, with membrane in nose, pharynx, on tonsils, and in larynx. The antitoxin was given, but in a few hours, the dyspnea having increased greatly, the tube was inserted. On the fifth day it was removed, but on account of the great difficulty in breathing it was almost immediately reintroduced. From that time on it was removed at intervals of from three to nine days, never being left out longer than forty-five minutes, usually from five to fifteen minutes, until it had been removed twenty-eight times. The last three times the tube was removed there was such difficulty in replacing it, on account of the great swelling and obliteration of the landmarks, and the child came so near dying each time that a tracheotomy was decided upon. The tracheotomy tube has been worn about one month. All efforts to leave it out have proven futile.

Sheffield, Herman B. : Diphtheria ; Remarks on Clinical Diagnosis and Treatment. (*The New York Medical Journal.* Vol. lxx., No. 27.)

After giving the local appearance of the throat in the various affections, the author mentions some of the early important constitutional symptoms of diphtheria. He states that, excepting the presence of albumin in diphtheritic urine, none of the early symptoms are characteristic of this disease. Indeed, they are frequently less pronounced in diphtheria than in any other throat affection, unless the former is complicated by streptococcic infection. The temperature is, as a rule, moderate and continuous. The pulse is feeble and quick, and soon gives rise to signs of exhaustion. The face, as a rule, is pale. Swallowing

is difficult, but not always painful. Albuminuria is invariably present in the beginning of the disease, and is very significant in the early diagnosis. In amygdalitis the temperature is quite high, especially towards evening, and albuminuria is usually absent. Scarlatinal angina is somewhat difficult of diagnosis. The author believes there are two forms of membranous laryngitis—diphtheritic and non-diphtheritic. In the treatment of pharyngeal diphtheria he believes primarily in the local treatment, as being necessary to protect the system from the absorption of the diphtheritic toxin. He endeavors to subdue the hyperemia and excessive exudation in the throat, to destroy the diphtheria bacilli at their point of entrance, to increase the resistance in the patient, to promote the action of the lymphatic system, kidneys and bowels. As germicides he uses, among other things, papoid, carbolic acid, powdered camphor, alcohol and glycerin, and peroxid of hydrogen. He gives plenty of good nourishment, and employs nerve and cardiac stimulants, diuretics and laxatives. He administers stimulants from the beginning of the disease, thus increasing the power of resistance and preventing the microorganisms from impregnating the internal organs. He gives internally tincture of the chlorid of iron, tincture of myrrh, strychnin, liquor ferri et ammon. acet. All untoward symptoms he combats accordingly. In severe cases of laryngeal diphtheria he resorts to intubation early, thus dispensing with tracheotomy later. For the swelling of the submaxillary glands he uses iodine and ichthyol locally. He has also used antitoxin with very good results.

Reiterman, C. : Report of a Case of Empyema. (*The Medical Standard*. Vol. xxiii., No. 1. 1900.)

A girl aged seven years had a pneumonia of the "grip" type. The disease began suddenly with chill, fever and pain in the left side. She was discharged as convalescent on the eighth day, but eight days later she was found to have dulness over the left lung, with respiratory murmur absent. Pulse was quickened, temperature 101° F. The heart was displaced to the right. The temperature ranged from 100° F. in the morning to 101° – $101\frac{1}{2}^{\circ}$ F. in the evening. Pulse was about 140, respiration 40. As the symptoms increased in severity and the dulness or flatness increased, the heart was displaced to a point directly beneath the right nipple, where a friction murmur was

distinctly audible, between the pleura and pericardium, synchronous with both cardiac and respiratory sounds.

Aspiration was done and two ounces of pus were withdrawn through a puncture in the sixth interspace in the midaxillary line. Examination failed to disclose either the pneumococcus or Koch's bacillus.

Five days later, as there was no improvement, twenty-four ounces of pus were withdrawn through a puncture in the fifth interspace in the anterior axillary line. This second wound opened at times after paroxysms of cough and discharged a little pus. There was more expectoration of thick purulent sputum which was not examined.

There was considerable deformity after the aspiration, and the left side was contracted, but the deformity is lessening. The heart is enlarged but it is nearly in its normal position. Cocain locally was used for the first puncture, and chloroform, carefully administered, was the anesthetic at the second operation.

Stivers, C. G.: Parrott's Disease; Report of a Case.
(*Southern California Practitioner.* Vol. xiv., No. 12.)

Parrott's disease, or pseudosyphilitic infantile paralysis, is really only a symptom of hereditary syphilis, first studied and named by Parrott. A case of interest in this connection is that of a boy of two months with an indefinite family history. Two other children of the child's mother died, one of pneumonia and one died suddenly. Specific history could not be obtained. There was no history of miscarriage, skin eruptions, sore throat or headaches, but the mother was having headaches at the time the case was reported. The baby was taken ill suddenly, crying and fretting. He had had a cold in his head for six or eight weeks, but no skin eruption, rhagades, fever or constitutional symptoms.

When seen the baby was apparently in great pain, crying hoarsely and constantly. The stools were frequent, but not unusual in color or odor. There was a coryza; the large joints were red, swollen and painful, especially the knee, shoulder and ankle. Attention was directed to the enlargements at the junction of the diaphysis and epiphysis in the legs and arms. The most pronounced feature in the case was the almost total inability to move the limbs. They were of large size, but edematous

and painful. The baby had no inclination to move either leg, and only moved one arm, the left, slowly and feebly.

The presence of a few scaly patches on the sole of each foot and the snuffles lasting for such a long time, together with the unequal character of the pseudoparalysis, led to a provisional diagnosis of syphilitic infantile paralysis, with the therapeutic test to determine the correctness.

One-tenth grain of calomel was given four times a day for four or five days, when inunctions of oleate of mercury and lanolin were substituted with good effect. After the first few days a mild faradic current was used to the legs and arms. The joints were kept quiet, but no bandages were applied. In one week the infant moved its arms and legs. There remained a distinct thickening of the tibia of each leg and a slight coryza. The skin was free of eruptions at the time that the report was made.

Quotations are made from various authors giving the salient features of the disease as corresponding with the case recorded.

Lermoyez, Marcel: The Contagiousness of Acute Suppurative Inflammations of the Middle Ear. (*Journal of Laryngology, Rhinology and Otology*. Vol. xiv., No. 12.)

The author is convinced that acute otitis media is contagious, not as an unavoidable contagion, such as eruptive fevers, but, on the contrary, a possible transmission, which from its infrequency and insidiousness usually escapes observation. He compares its contagiousness to that of pneumonia. A number of cases are recorded to show this influence, and he concludes: "When a healthy individual put in contact with a patient suffering from ear disease contracts from this contact a disease of an identical character, we are justified in suspecting that there is contagion rather than that a second case is due to mere coincidence. Given the first patient affected with influenza complicated with otitis, any other patient with influenza put in contact with him will run great risk of acquiring the ear complication."

There is a practical conclusion from the study. It is believed that we may isolate the patients, and especially the children, affected with acute median otitis, even if it is primary, and still more if it is a secondary complication of an infectious disease. As a measure of prophylaxis, nasal and buccal anti-

septics are excellent, and the results are encouraging; but acute cases should be isolated.

Benedict, A. L.: Serious Heart Disease Without Rheumatism. (*Medicine.* Vol. vi., No. 1.)

While rheumatism is especially related to endocarditis, it must not be forgotten that scarlet fever may produce endocardial changes. The same is true in a less degree of the other infectious diseases, particularly those usually spoken of as children's diseases. In many instances the most positive bacteriological proofs of the nature of the endocarditis have been afforded. It is not positively demonstrated that acute rheumatism is an infectious disease, and since the analogy between acute rheumatism and demonstrably infectious diseases is no closer than between acute rheumatism and chronic rheumatism, which latter is certainly a chemic disease and not infectious, unless it is in an extremely roundabout way, reports have shown that the gonococcus was competent to produce endocardial disease, and also the typhoid bacillus. Indeed the generalization seems allowable that the germ or other inflammatory irritant which will cause inflammation of a joint under certain circumstances may invade the endocardium and produce valvular defects.

A girl of fifteen, recently seen in the hospital, had a well marked mitral regurgitation and slight enlargement of the heart to the left. The case was acute and the murmur was not functional or hemic. The patient had a moderate rise of temperature with remissions for some days. There was practically no joint affection nor complaint of pain. Stained specimens of blood showed no marked abnormality. The case was regarded as one of mild rheumatic fever localized in the endocardium.

Personally, the author is unable to set forth a satisfactory theory, but would suggest that some of the cases recorded presented evidences of faulty digestive chemistry, and that the metabolic products formed may have acted as irritants on the endothelium of the valves.

Fischer, Frank: Athetosis and Kindred Affections. (*Philadelphia Medical Journal.* Vol. v., No. 3.)

A boy of twelve years had measles at the age of three and whooping-cough a year later. Otherwise he was well until six months preceding the time he was brought under observation. Then he had had a fever lasting about two weeks. There

appeared an eruption upon the general surface of the body, consisting of bright redness of the skin. This was associated with tonsillitis. Since that time the patient has not seemed well, and is easily fatigued on slight exercise. The exanthem may have been that of scarlet fever. A month after the occurrence of the eruption, he began to have fever again, and he developed pains in the joints, especially the ankles, wrists and knees. The joints were not markedly swollen, but were sensitive to pressure, and were also the seat of spontaneous pain. At the end of four weeks this condition gradually disappeared. During this period of what was clearly an attack of acute articular rheumatism, there developed a pain in the chest, associated with evidences of circulatory disturbances. This was diagnosed as pericarditis. Immediately after the patient's recovery from the rheumatism, it was noticed that he was using his left hand in preference to the right, and that he was making movements with the right hand apparently involuntarily. At the same time he appeared to have lost to some extent the control of the right lower extremity. These troubles grew worse for about two weeks, and then remained stationary for some weeks. The movements of the hands and legs became more pronounced, and he developed a difficulty in articulation. The left hand also became affected, and there developed some involuntary movements of the head. For the past six months there have been frontal headaches at times, occasionally vertigo and sometimes nausea.

On examination the patient was found to be rather pale. There was no paresis about the face. The tongue was protruded straight, but there were slow involuntary movements while it was kept protruded. The pupils were equal and reacted to light. There was no disturbance of the special senses. On the dynamometer the two hands were found to be equal. The kneejerk was well marked on both sides. In the gait there was a slight unsteadiness. In the hands, especially the right, there was an almost constant, slow, rhythmical movement, wavy in character, involving the upper phalangeal joints and the joints of the fingers. The fingers wind over and under one another with slow, wavy, regularly-repeated movements, very unlike the spasmodic movements of chorea. All these movements become aggravated upon concentration of the attention. During the examination there were slight involuntary movements of the head, likewise of the left lower extremity. Exam-

ination of the eye disclosed a normal fundus. The chest was negative except that there was a slight friction murmur heard over the heart synchronous with the systole. The patient was kept on Fowler's solution, and was reported to have improved. The movements of the hands had almost ceased, and a month after treatment was instituted he was reported as perfectly well.

This was regarded as a case of athetosis as distinguished from chorea. In the first place, the movements were slow and apparently deliberate, whereas choreic movements are rapid and apparently purposeless. Secondly, the movements of athetosis are sinuous, as they involve the hands, and the fingers wind over and under one another, and the movements of chorea are jerky. Thirdly, the movements in athetosis are regular and rhythmical, the same movements being constantly repeated and assuming the same form in a given case. But choreic movements are irregular and from one moment to another it is impossible to infer what form they will assume.

The treatment of the case shows the benefit derived from increasing the dose of Fowler's solution. With a small dose there was no improvement, but rather an aggravation of the condition, whereas a dose of 10 m. three times a day produced rapid improvement.

After quoting the views of different writers, the author gives the opinion that athetosis is a reflex disorder, due primarily to sensory disturbances.

[The description of the case would show it to be one of chorea with athetoid movements rather than an athetosis. The treatment given would bear out this view.]

Rosenberry, A. J.: Relapse in Scarlet Fever. (*The Therapeutic Gazette.* Vol. xxiii., No. 12.)

A delicate boy of nine years had a rash and a sore throat, with a temperature of 103° F. There was on the following day an abundant rash with angina and involvement of the cervical lymph nodes. The temperature after three days gradually subsided to normal, and desquamation followed.

Three weeks after the first attack he had a temperature of 105.5° F. Treatment seemed to exercise very little influence on the temperature. On the second day, with the temperature at the same point, slight tumefaction of the inframaxillary lymph nodes was present, and on the third day, with the temperature

still above 105° F., a characteristic rash appeared on the lower extremities, which further observation showed to be a genuine scarlet fever eruption. The angina returned, and everything pointed to a genuine relapse from a reinfection. Desquamation occurred only once, as the patient was in the midst of it when the relapse occurred. (No report of urinalysis is made.)

Schamberg, J. F.: A Clinical Study of the Lymphatic Glands in One Hundred Cases of Scarlet Fever. (*Annals of Gynecology and Pediatrics*. Vol. xiii., No. 3. 1899.)

There is perhaps no eruptive disease that occasions more frequent errors of diagnosis than scarlet fever. There is no one symptom which is in itself at all characteristic of the disease.

To determine the value of the symptom of enlargement of the lymph nodes 100 cases were examined. The enlargements were in the following proportions:

Inguinal Lymph Nodes,	.	.	.	100 per cent.
(a) Pea-sized,	.	.	23	per cent.
(b) Bean-sized,	.	.	77	"
Axillary,	.	.	.	96 per cent.
Maxillary,	.	.	.	95 "
Posterior Cervical,	.	.	.	77 "
Anterior Cervical,	.	.	.	44 "
Submaxillary,	.	.	.	36 "
Epitrochlear,	.	.	.	26 "
Sublingual,	.	.	.	25 "

The maxillary lymph nodes or those just behind the angle of the jaw, reached the largest size of any of the lymph nodes and were the most frequent to undergo suppuration.

The patients were examined at various stages of the disease, as early as the second and as late as the fifteenth day. Unfortunately no cases were observed upon the first day of the disease and consequently the date of the commencement of the tumefaction could not be accurately ascertained. It is quite probable, however, that it was present upon the first day. In order to compare the lymph nodes in diphtheria with those in scarlet fever, a control examination of twenty-five or more cases of diphtheria was made. This examination sufficed to demonstrate that there is a wide variation and lack of uniformity in the adenopathy of diphtheria. In general the lymph nodes are much less marked than in scarlet fever, but in some cases there may be quite as much swelling. As a diagnostic aid, therefore, in differentiating the rashes in diphtheria from true scarlatina, the study of the lymph nodes is perhaps of inconsiderable value. A well marked enlargement of all the superficial lymph nodes,

particularly the epitrochlear and axillary, would probably tend to throw the balance in favor of scarlet fever. The adenopathy in measles is not nearly so well marked as that observed in scarlet fever.

Toxins of a widely different character produce similar eruptions to that of scarlet fever. Thus these eruptions are prone to develop during the course of rheumatism, pyemia, septicemia, malaria, intestinal ptomain poisoning, typhoid fever, etc. They may result from the ingestion of quinin, mercury, etc. It has been observed that the lymph nodes are not enlarged in scarlatiniform erythema. If true, then the examination of the superficial lymph nodes in this eruption would have considerable diagnostic importance.

It must be acknowledged that the inguinal lymph nodes are often enlarged without scarlatina so that fact must be considered. The enlargement of the lymph nodes in scarlet fever does not appear to be proportionate to the severity of the rash but more to the intensity of the toxemia.

Bradley, W. N. : A Case of Acute Lymphemia or Acute Lymphatic Leucemia. (*The New York Medical Journal.* Vol. lxx., No. 26.)

The disease occurred in a boy of eight years, the child of Hebrew parents.

The mother had suppurating glands when a child. One brother of the patient had marasmus but recovered and has since been healthy. The patient had suppurating cervical glands when a year and six months old, and measles when three years old.

The present illness began with loss of appetite, lassitude and no desire to play. Attention was directed to enlarged cervical lymph nodes.

The patient was pale, not anemic, the lymph nodes on both sides of the neck were enlarged, soft and elastic. The nodes were separate. The temperature was 100° F. Some shortness of breath; no cardiac murmur; no cough; decided dulness over apices and upper and middle lobes of both lungs; harsh breathing with prolonged expiration; abdomen enlarged; no pain elicited on pressure over abdomen or left side were the symptoms.

Five days later there was no improvement in the general condition, though the lymph nodes were reduced in size. There was a hard cough without expectoration.

A week later the patient's condition was worse, with these symptoms: Anemia pronounced; dyspnea decided; spleen greatly enlarged, being palpable two or three fingers' breadth below the anterior border of the ribs; the liver slightly enlarged; the epitrochlear, axillary and inguinal lymph nodes were enlarged.

The blood examination showed red corpuscles, 1,850,000; white corpuscles, 85,000; hemoglobin, 18 per cent. The proportion of red to white here was 1 to 22.

Differential count gave large lymphocytes 69 per cent.; smaller lymphocytes, 28 per cent.; polynuclear leucocytes 3 per cent. Out of 600 leucocytes counted no eosinophiles were demonstrable.

The blood examination determined the nature of the disease. The disease advanced rapidly. There was a failure of strength, progressive anemia, cough and dyspnea, a purpuric rash over the body and an oozing of blood from the gums.

The patient refused nourishment, the skin was waxy and pale, the submaxillary lymph nodes became greatly enlarged and hardened. The abdomen was tender and swollen. There was no cardiac murmur. The dyspnea was very severe, there was great restlessness with a tendency to coma and the boy was irritational when aroused. No edema.

The bowels through the disease were slightly loose but there was no diarrhea.

The urine did not contain albumin or casts, but it contained a large quantity of crystals of calcium carbonate.

The patient died eight weeks after the onset of the illness.

No autopsy was permitted.

SURGERY.

Randall, B. A. : Four Cases of Cerebellar Abscess ; One Success ; Two Autopsies. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 20.)

The serious complications of ear disease have grown very frequent with the increase of influenza epidemics. Surgical experience is clearing up the mystery of some of the complications, but there should be better treatment of the acute and chronic suppurations to lessen the dangers they entail. Clinical recognition of intracranial disease is revealing many of the operable cases before all chance of success has passed.

CASE I.—C. R., aged fifteen years, complained of pain and swelling in the right mastoid. The ear had discharged slightly for three years after scarlatina, and had been scarcely noticed, but five days before he was seen a box on the ear had been followed by nausea, pain and malaise. The temperature was 100.6° F. Operation was advised, but refused. The next day, however, mastoid chiseling was done, and two drams of foul pus escaped from the soft tissue. The bone surface seemed intact, but it was hard and sclerosed. Pus was found with little caries when the antrum was reached. No sinus was detected. Temperature of 102° fell to normal, but soon after reached 104.4° F. Change of dressing showed nothing especially wrong with the wound. Mentally he was restless, but with little definite complaint. Temperature went up to 105°. Examination revealed pleural friction on the right side. This was rapidly followed by effusion and lung consolidation which were not influenced by treatment. No rigor had been noted. There had been no jugular tenderness about the neck. The head symptoms continued apparently trivial. The temperature remained high. There was an increase of respiratory failure and purulent expectoration which marked the advance of an abscess of the lung. Death occurred six days after the operation and thirteen after the injury.

The autopsy showed destruction of both lungs, with empyema worse on the right side; no important visceral lesions except slight appendicitis. The dura mater was adherent, the pia mater clouded, and two drams of pus was discharged from a cerebellar abscess. The dura mater was intact. Small necrotic remains of the ossicles showed the long-standing character of the otorrhea, and that more sweeping exenteration of the cavities should have been done. The cerebellar abscess, as large as a pigeon's egg, had a thick pyogenic membrane. It possibly antedated the injury, but more probably it and the lung abscess were caused by the inflammation following the blow.

CASE II.—Girl of fourteen years of age; suppuration of right ear of two months' duration following attack of grip. Exploration under ether was made. Mastoid was found to be one large cavity. The sigmoid sinus was bare and covered with granulations. Some two inches of dura were laid bare. The general condition was bad, but healing was fairly prompt, and the girl was discharged after ten days. Two weeks later, without

definite burrowing in the neck tissues, an abscess formed at the clavicle, and on evacuation could be followed upward beneath the sternomastoid. The healing was prompt below, but there was some oozing of pus from the mastoid above. Finding the pulse 76 and the temperature 98°, an operation was performed to determine if there were a cerebellar abscess. Considerable caries of the inner table of the petrous bone was found with some extradural pus. There was considerable bleeding, so that the wound had to be packed and further exploration deferred. The patient grew weaker without any special localized symptoms, and died four days after the operation. No *post-mortem* examination was permitted, but there was no question as to the existence of pus in the cerebellum, although there was no bulging of the dura mater in the parts exposed.

CASE III.—Boy of six years. Had middle ear suppuration of acute onset, but of slow progress, lasting for two months and followed by mastoid swelling. The mastoid was chiseled and emptied of carious bone and flabby granulations. Nothing unusual was noticed until, in preparing the wound for packing, a rough overhanging portion of bone was scraped smooth and a rough cavity was found about 1 cm. in diameter in the cerebellum. This was scraped clean and packed, but was slow in healing. The child was in excellent condition three months after the operation, when he was lost sight of.

CASE IV.—Girl, four years old. History of post-scarlatinal suppuration of the right ear followed by mastoid abscess. This had been incised, with the formation of a sinus behind the ear. After the incision there was much head-pain, especially on the right side. Four days previous to admission, the condition was serious, with vomiting, convulsive twitchings of the left arm and leg without paresis, hand and head movements toward the right, and there was considerable emaciation. A diagnosis of cerebellar abscess was made. There was little mental disturbance. The mastoid was emptied of carious bone and granulations, but no defect of its inner surface could be discovered, so further intervention was delayed. The child died the following morning. The autopsy showed marked excess of fluid in the arachnoid and ventricles, and pus oozed from the cerebellum when it was removed. The surface of the cerebellum was normal, but there was an abscess, about 3 by 5 cm., occupying nearly the entire right lobe.

These cases show the difficulty of diagnosis in the matter of intracranial abscess, especially in the cerebellum.

Evidences of intracranial pressure, presumably of an abscess, may be noted in slowed pulse or subnormal temperature; yet no indications can be found as to localization: subnormal temperature, indeed, is often present after la grippe or other depressing illness, without any unfavorable meaning. The eye grounds and visual fields and the eye muscles must be studied, although they all too rarely give any timely aid. Pain, spontaneous or on pressure, is generally present, but will as often mislead as guide us to the seat of trouble. Multiple abscesses may be present to confuse the localization, or undeclared at first, to bring to naught our success in healing one of the lesions. Meningitis may mask the abscess indications or carry off the patient in spite of most skilful care. Finally, delay in waiting for localizing symptoms all too often makes surgical intervention little more than "an *ante-mortem* autopsy."

Skilfully done under modern methods, an operation should add little to the dangers of the case when compared with those of unrecognized brain abscess. If full confidence is not accorded to your view of the conditions, a consultation should be held unless the indications are utterly inconclusive and you can still temporize.

Donald, Hugh C.: A Case of Mastoid Abscess, followed by Cerebellar Abscess. The Results of Otitis Media; Death. (*The Glasgow Medical Journal*. Vol. liii., No. 1. 1900.)

A girl aged eleven years who had had a discharge from her ear for several years, with at times a cessation of the discharge. Lately with the stopping of the discharge there was great pain and tenderness. For three weeks before admission to the hospital she had fever, loss of appetite, languor and was very irritable. There was no history of vomiting or rigors.

The patient was much emaciated, and her general condition was grave. She was drowsy, and when roused her speech was slow and jerky. The pulse and respiration were slow but regular. The temperature was subnormal. The pupils dilated equally. On washing the ear a quantity of offensive pus escaped.

The mastoid cells were opened up and were found to contain caseous pus and foul granulation tissue. Posteriorly there

was a large abscess which contained offensive pus. On account of the symptoms shown by the patient an exploring needle was used in the cerebellum, but it failed to reveal pus.

The patient improved after the operation. There was a continuous and copious discharge from the mastoid wound. The thirteenth day after the operation the discharge had ceased, and the cavity had almost completely granulated. The speech was slow and undecided. A few days later, though the patient was better, she had frontal headache, was drowsy and restless, and refused nourishment.

Two days after these symptoms she became comatose. The mastoid cavity was again opened, and after scooping away the granulation tissue a portion of brain tissue was found bulging into the cavity. The cerebellum showed pus on the insertion of an exploring needle. Six drachms of pus escaped. A drainage tube was introduced, but the patient never regained consciousness.

There was a septic thrombosis of the left lateral sinus with ulceration of its walls, and communicating with a large abscess cavity occupying the left lobe of the cerebellum; thrombosis of the longitudinal sinus, with marked dilatation of the veins leading into it; the cerebrum was normal, and there was no evidence of meningitis.

Keen, W. W. : Surgical Treatment of Perforation of the Bowel in Typhoid Fever. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 3.)

During the past few years 158 cases at all ages have been reported as having been operated upon. Age is no barrier to the operation, although it has considerable influence on the recovery rate. The most favorable years for operation are under fifteen. Of 13 cases under fifteen years of age reported operated upon 7 recovered and 6 died, giving a recovery percentage of 53.84. He concludes his paper with the following summary:

1. The surgeon should be called in consultation the moment that any abdominal symptoms indicative of possible perforation are observed.

2. If it be possible to determine the existence of the preperforative stage, exploratory operation should be done under cocain anesthesia before perforation, shock and sepsis have occurred.

3. After perforation has occurred, operation should be done at the earliest possible moment, provided:

4. That we wait till the primary shock, if any be present, has subsided.

5. In a case of suspected, but doubtful perforation, a small exploratory opening should be made under cocaine to determine the existence of a perforation, and if hospital facilities for a blood count and for immediate bacteriologic observation exist, their aid should be invoked.

6. The operation should be done quickly, but thoroughly and in accordance with the technique already indicated.

7. The profession at large must be aroused to the possibility of a cure in nearly, if not quite, one-third of the cases of perforation, provided speedy surgical aid is invoked.

Melzi, U.: On a Case of Retropharyngeal Abscess of Auricular Origin. (*The Journal of Laryngology, Rhinology and Otology*. Vol. xv., No. 1. 1900.)

One of the least frequent causes of retropharyngeal abscess is suppuration of the middle ear. Twenty-two such cases are recorded, and to that list may be added the following:

A girl of two years was put under professional care for suppuration of both ears. There was perforation of the drums with a free discharge of pus.

The posterior wall of the tympanic cavity was covered with granulations. After proper washing the left side ceased to discharge pus, but the right side did not do so well. In three weeks the pus flow ceased completely.

A month later the child was taken with severe coryza and bronchitis, followed by pain in the ears and suppuration returned on both sides. With cleansing the right side improved, but the child began to be feverish, complained of pain in the throat, refused food and had a troubled and interrupted sleep; she began to snore, had a slight degree of stiff neck and the sub-maxillary region was red and swollen. There was no change in the mastoid region.

There was a marked congestion of the mucous membrane of the pharynx and nose.

The following day the child refused all food and during the night she had several attacks of suffocation.

Examination disclosed an enormous retropharyngeal

abscess which, on being opened, gave exit to a great quantity of pus. No roughness of the vertebræ could be detected by the probe. Suspecting that the suppuration might be due to the disease of the ear a bacteriologic examination was made of the pus from both the abscess and the ear, and the same bacteria were found. [Name not given.]

The tumefaction and swelling disappeared and three months later there was no evidence of disease of the ears, nose or spinal column.

Taylor, R. T. : The Necessity of Post-Operative Treatment of Club-Foot. (*Maryland Medical Journal.* Vol. xlii., No. 23.)

Practically all cases of true congenital talipes equino-varus relapse into just as bad a position, and more often into a worse position, than they were before operation, when they are not mechanically fixed in an overcorrected position after operation, so that that they can be walked on. In infancy the treatment depends on the resistance met with. After birth a club-foot may be manipulated daily into a normal position and held there by a skilfully applied roller bandage. Later manual stretching and adhesive strapping, to take up the gain made, or a plaster cast may be necessary. This treatment is continued and supplemented later by a Taylor club-foot shoe, if necessary, until the child walks on a normal foot. In still more resistant forms tenotomy may be necessary, with careful attention to the after-treatment as previously outlined.

In some infants, with resistant contraction of the internal structures, still not sufficiently resistant to require cutting, it is difficult to apply a successful plaster of Paris bandage to accomplish the aims of treatment on account of their small size. An apparatus that somewhat resembles the Taylor club-foot shoe, except it has no ankle-joint nor strap on the footpiece, being intended as a retentive and not an ambulatory brace may be used.

The following conclusions are emphasized:

1. Any surgeon who is conversant with the anatomy of the foot and the pathology of congenital talipes equino-varus can correct this deformity; but the work of the best surgeons will be worse than useless if correction is not maintained by a suitable ambulatory brace for months afterwards.

2. To prevent the recurrence of varus three points of pres-

sure must be on the brace, *viz.*: at the metatarsophalangeal articulation of the great toe, at the inner side of the heel and at the calcaneo-cuboid articulation on the outer side of the foot.

3. There must be a stop-joint at the ankle to prevent a recurrence of the equinus.

4. To prevent supination of the foot the inner side of the brace and shoe must be lower than the outer.

5. Any mutilating operations to the bony framework of the foot, such as the removal of the astragalus, cannot be too highly condemned as contrary to the best interests of the patient.

Robinson, H. B.: Acute Intestinal Obstruction Due to an Intussusception of Meckel's Diverticulum. (*British Medical Journal*. No. 2029. 1899.)

A healthy boy of five years was quite well to within forty hours before his seizure. He complained of an occasional pain in the abdomen, had nausea, but the bowels moved naturally. During the day the pain continued but the temperature was normal and the examination of the abdomen was negative. Bilious vomiting came on with pain near the umbilicus, hiccough and thirst. The following day he seemed better but vomited whenever he swallowed anything. There was no tumor to be felt in the abdomen or *per rectum*. The temperature was 99° F., pulse 130°. Later the pain became continuous and the abdomen more distended. An enema gave some signs of blood. The pain was localized near the umbilicus and there was vomiting of clear, bile stained fluid. No flatus had been passed for some time.

Examination showed the abdomen much more distended, with the coils of intestine showing near the upper part. On palpation there was no rigidity nor special tenderness. There was an ill defined tumor just over Poupart's ligament on the right side. There was a slight dulness over this area but the rest of the abdomen was resonant. The rectal examination did not disclose a tumor or any mucus discharge but there was some blood on the examining finger.

Under an anesthetic the resistance above Poupart's ligament disappeared but *per rectum* a lump was found in Douglas' pouch which could be pushed up and then felt to the right of the bladder and above the inner part of the ligament. A median incision was made and clear fluid escaped but no lymph coagulation.

The tumor in Douglas' pouch was found to be intussuscepted small intestine forming a tumor about four inches long. Without much difficulty the main part of the intestine was reduced when a hardness presented with a cup-shaped depression in the centre; this lump proved to be the inverted diverticulum. It was impossible to reduce it and it was excised. The edges of the gap in the intestine were brought together by Lembert's sutures but part of the wound was not closed as it was stitched to the edge of the abdominal wound. The boy's condition forbade any lengthy resection. He did not survive the operation more than two hours.

In the discussion on the case Mr. Symonds reported two cases of obstruction of Meckel's diverticulum. One was in a boy who had symptoms like appendicitis. An operation disclosed an adherent diverticulum with gangrenous and twisted intestine. The other patient was a man.

He had operated upon eight cases of intussusception, only two of which were successful. One of them was a baby of twelve months with an intussusception reaching from the cecum almost to the rectum. The case was operated upon within the first twenty-four hours and made a good recovery. The other case of recovery was that of a baby of eight months old who was seen within forty-eight hours. Both cases showed the advantages of early operation.

HYGIENE AND THERAPEUTICS.

Saunders, E. W. and Fisch, C.: Toxic Human Milk
(*Medical Review*. Vol. xl., No. 24. 1899.)

Several cases are reported as proving the position held in a previous paper, that there is another cause than the disproportion of nutritive elements in breast milk to account for the ill effects on the nursling sometimes observed. In the cases reported, analyses were made and microscopic examinations and culture investigations, which did not demonstrate anomalies. Inoculation experiments on guinea-pigs and rats showed, however, marked toxic qualities fully accounting for the bad effects observed in the nursling. In one case a mother underwent a dental operation that exhausted her very much. She nursed her baby of nine months who soon began to be restless and had vomiting and diarrhea. The symptoms disappeared when the

nursing was discontinued. Some of the milk from the women was injected into a guinea-pig and caused convulsions. The poison appeared to be in some cases an alkaloid, and in others a toxalbumose, and these were not exactly typical in their action. For instance, the toxalbumose produced in animals experimented on, a subnormal temperature, an effect usually ascribed to alkaloids, and in another case an alkaloid poison produced elevation of temperature. In one, absence of toxicity of milk was demonstrated, yet there was a mild derangement of digestion in the nursling, which was ascribed to the excess of proteids and small percentage of mineral matters. The conclusion is that the poison in the milk is absorbed from the gastrointestinal or the genital tract of the mother, in menstruation, etc., and that it is elaborated by the cells under the influence of disturbed innervation.

Gilbert, R. B. : Treatment of Scarlet Fever. (*The American Practitioner and News.* Vol. xxviii., No. 45.)

The milder forms of scarlet fever really need no treatment other than keeping the patient in bed and the enforcement of prophylactic precautions. The danger of infection, however, is just as great in the mild cases as in the severer forms. A scarlet fever patient should be carefully isolated. The greatest danger of infection and contagion is from the exfoliations of the skin during convalescence. The simplest and yet most efficient means of dealing with the cutaneous desquamations is to keep the skin thoroughly anointed with hog's lard or olive oil. The application of lard has a soothing effect upon the skin; it allays the itching and burning, and gives a sense of comfort and quiet to the patient. The exfoliating epithelium is loaded down with grease and will not float about in the air, thus preventing the spread of the disease. All bedding and clothing from the scarlet fever patient should be thoroughly disinfected. This can be done by the action of boiling water or "live steam." This is more reliable than fumigations with sulphur or formalin. All excreta from the patient should be received in a receptacle containing a strong antiseptic solution.

The hyperpyrexia of scarlet fever may be treated by quinin combined with phenacetin and caffeine. This combination should be given whenever the temperature rises above 103°. The patient should be encouraged to drink water freely. The

author does not believe in the use of the full bath and the wet pack, and thinks the only cases in which the full bath is advisable are those in which the patient has a very high temperature and violent delirium. For the pharyngitis and tonsillitis the throat should be sprayed with a mixture of equal parts of peroxid of hydrogen and lime water. The same mixture may be used in the nasal passages. To allay restlessness at night, chloral hydrate is a most acceptable remedy. Opium should not be used, as it lessens renal secretions. To combat the anemia, ammonio-citrate of iron in one grain doses is a very acceptable plan of treatment. Liquid diet, such as soups, milk and broths, should be given to lessen the risk of nephritis.

Fliesburg, O. A.: Fifty Cases of Membranous Croup, Treated by the Same Method with 38 Recoveries and 12 Deaths. Of the Fatal Cases 2 were Instrumental. (*North-western Lancet*. Vol. xix., No. 22.)

In the series none but true cases with membrane were included; of the series 13 cases were instrumental with 3 recoveries; the balance, 37 cases, were treated exclusively by the method here detailed with 35 recoveries, or in all 50 cases with 38 recoveries. These cases were seen over a period of 14 years and all were membranous.

The treatment consists in the administration of powders composed of the hydrochlorate of apomorphin gr. 1.100-1.40, calomel gr. 1, bicarbonate of sodium gr. 2. These powders are given dry on the tongue, one every hour. It is claimed that the usual doses of apomorphia are too large, but this in a small dose and combined with the calomel and soda there is a stimulating, antiseptic effect from the whole powder not to be had when one ingredient is administered alone.

Feer: Bromoform in Whooping-Cough.—(*Semaine Med.*, Dec. 13, 1899. *The Journal of the American Medical Association*. Vol. xxxiv., No. 3.)

The parent is given 10 gm. of bromoform in a colored bottle with the directions to give the child three times a day as many drops as he is years old, plus two. Five years old = 5 + 2, that is, seven drops three times a day for four days, and then four times a day. If no improvement is noted in a week add one drop, and by the end of another week add another drop. Older children should not take over 50 drops during the day, and adults not over 70 drops to 80. It should be taken after meals in water, milk or the yoke of an egg, from a spoon. Parents should be warned not to leave the bottle in reach of the children. A child three years of age took 4 gm. at once (120 drops), but the coma and cyanosis induced by the intoxication soon passed away, showing the slight toxic properties of the bromoform.

American Pediatric Society.

TWELFTH ANNUAL MEETING.

(FIFTH MEETING OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.)

Washington, D.C., May 1, 2, and 3, 1900.

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Preliminary Program.

Studies on the Blood in Childhood. DRS. ALFRED STENGEL
and C. Y. WHITE, Philadelphia.

Clinical Observations upon the Operative Treatment of
Tuberculous Peritonitis; also Specimen. AUGUSTUS
CAILLÉ, M.D., New York.

Sudden Death from Perforation of Trachea and Bursting of
Caseous Gland. AUGUSTUS CAILLÉ, M.D., New York.

A Report of a Case of Ante-natal Hemorrhage into the
Supra-Renal Capsule and Peri-Renal Tissue Causing
Death. SAMUEL McC. HAMILL, M.D., Philadelphia.

Naso-Pharyngeal Disease in Pediatric Practice. F. HUBER,
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The Nephritis of Influenza in Children. ROWLAND G. FREE-
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Some Points in the Physiology of Milk Digestion. B. K.
RACHFORD, M. D., Cincinnati.

Enteric Fever in Childhood. A. D. BLACKADER, M.D.,
Montreal.

Measurements of Chicago School Children. W. S. CHRIS-
TOPHER, M.D., Chicago.

ARCHIVES OF PEDIATRICS.

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[No. 5.]

Original Communications.

THE AMBULATORY AND HOSPITAL MANAGEMENT OF THE GASTROINTESTINAL DERANGEMENTS OF IN- FANCY IN THE SUMMER MONTHS AMONG THE POOR OF LARGE CITIES.*

BY HENRY KOPLIK, M D.,

Attending Pediatrician to the Mount Sinai Hospital, New York.

Gentlemen of the American Pediatric Society :

I invite your sincere consideration to-day to a theme which is as broad and catholic in its bearing upon human happiness as any which can fall under the notice of the physician or layman. The care during the summer months of the vast number of infants and children of the poor in our large cities is a duty which in some countries the State and in our country private individuals assume. There is a distinct state and economic reason for this. It is not simply charity that impels us to care for these wards of humanity at large. It is our own happiness and the welfare of the State that is bound up with the welfare of the proletariat and its offspring. For this reason any fact, any suggestion which tends toward the improvement of present conditions with these little wards of ours among the poor, tends toward our own elevation, moral and material happiness. During the winter months we find among the crowded dwelling places of the poor in large cities those conditions which in an aggravated degree in the warm season cause a great mortality among the infant population. We find the housing together of vast numbers of human beings creates conditions of filth which, held in check by the lower temperature in winter, in a minor degree cause disease. In the summer, when temperature favors, these conditions act in a manner to cause frightful

* Presidential Address, American Pediatric Society, Washington, May 1, 2 and 3, 1900.

mortality. In short, diseases caused by dirt infection are prevalent during the winter months but to a lesser degree than during the summer. We can explain this in great part by the fact that in winter the food, which is the principal source of infection to infants, is better preserved in spite of the constant factor of personal carelessness than in summer. In this country our statistics on this subject are very imperfect, but in France of all deaths below one year, one-half of the total mortality is due to gastroenteritis. In a small brochure by Madam Chaternikoff, we find that of twenty odd thousand infants below one year of life who died of intestinal trouble, between the years of 1891-98, in Paris, 3,639 were breast-fed and 18,818 bottle-fed infants. These figures are cited only to illustrate accurately conditions which exist to-day in every civilized land. In America and in my own city, New York, these conditions exist to a great degree, possibly greater than above indicated. The breast-fed infant is not exposed to any great or as many sources of infection as the artificially-fed infant. In the latter cow's milk is the substitute for the breast by common consent of all practical men. Yet before it reaches the infant it passes through so many channels, and is exposed to so many chances of infection, that we wonder the mortality is not larger than it really is. Milk, above all articles of diet, attracts to itself infection even if such infection is not directly introduced into the milk. The animals from whom the milk is obtained can first introduce infection. I do not refer to tuberculosis but to filth. The udder of the animal may be the means of introducing into the milk streptococci, which can cause virulent forms of diarrhea. Dairy dirt also may be introduced into the milk during milking. Again, in passing from utensil to utensil in commerce the milk is exposed to a thousand and one sources of infection. In the Congress of Pediatricists, held abroad in 1881, before the dawn of the proper understanding of the value of cleanliness in handling infant foods, great stress was laid upon cleanliness in the collection of the milk intended for consumption by the infant (Heubner). It remained for Soxhlet to show that the food must not only be brought to the infant clean and free from infection, but it must be preserved thus until consumed by the infant. By whatever means these things are attained to-day, all practical men will agree that the greatest light introduced into the dark and baffling problem of infant feeding remains absolute

cleanliness. As to the food itself, we find that the vast number of infants attain their majority through the most diverse methods of feeding. Each is lauded to the skies by the originator. I need only mention names such as Meigs, Biedert, Rotch, Escherich, Backhaus, Gaertner, Heubner, Soxhlet, Hoffman, to show that the successful feeding of the healthy infant can be carried out artificially in a variety of ways. The foundation of all artificial feeding must necessarily be the breast feeding; and yet in this natural method we find the greatest diversity in the quantity and quality of the food, tending to give equally brilliant results. We have a limited number of studies upon breast-fed infants which tend to show that as to quantities one infant will take only 89 caloric equivalents daily, another 126 caloric equivalents, and yet both infants be equally well nourished (Heubner). Thus, we cannot always fix upon absolute quantities. Again, it has been well established by Meigs and others that the proteids of the breast milk are constantly low, 1 to 1.5 per cent. The fat, however, varies largely in the same milk and in the milk of various breasts, and yet the children of each breast thrive. If we turn to cow's milk, we have a more difficult problem. We must not only dilute the milk, but there is a large waste even in thriving infants of the proteid constituents of the milk. This is manifested by an increase in the phosphorus in the excreta (Knöepfelmacher). Thus, it is not enough to simply construct the infant's milk on the breast proportions, but we must take into account the above waste and also the necessity of dilution.

As to dilution the leading minds differ. Budin, Chavaune, Comby, Drapier and at one time Escherich employed simply undiluted sterilized milk. Gauchas, Marfan, Heubner, Jacobi, dilute the milk. Others, such as Meigs, Rotch, Escherich and Gaertner reconstruct the milk into proportions equal to that found in human milk. And yet in the vast number of infants outside of hospitals good results are attained by these clinicians, else they would not laud their methods. The truth is that with healthy infants mixtures of the most diverse nature will give results if the food is clean and the dilution carried to a necessary extent. Given, however, an infant suffering from ever so slight a gastrointestinal disturbance, it becomes a difficult problem to feed that infant. We have an *infection* added to the difficulties. It follows that in all our work we should sharply divide the well

from the sick infant, and the infant that is slightly ill from the severely ill infant.

That the gastrointestinal diseases, both mild and severe, are, in the vast number of cases, infections is the keynote of my theme. This is as true of the gastrointestinal disorders which occur to a mild degree during the winter months as of those that prevail to a startling and decimating extent during the summer season. We must no longer look upon the care of this large number of helpless sick as a problem of infant feeding simply. The time is ripe and the additions to our knowledge decisive enough to warrant the view that in treating the infants of our large cities during the summer months for gastrointestinal disorders, we are face to face with the problem of the treatment of infectious diseases just as much as we would be in the face of an epidemic of typhoid fever, measles, scarlet fever or diphtheria. Nay, our responsibilities are greater, for the mortality and suffering are much greater than in any of the above disorders. We teach the doctrine of isolation and disinfection and prophylaxis in the above infectious diseases, but it does not occur to the average physician to teach the ignorant mother that an infantile movement even of a normal character is infectious; that personal cleanliness on part of the mother in her maternal duties to her offspring is essential to its well-being and health. The food of the bottle-fed infant if contaminated by the hand of the mother is a frequent source of danger. How many physicians have ever warned the average mother to wash her hands after the baby's toilet is completed and before preparing the the bottle for the baby's consumption? Few, I dare say. How many men who are daily thrown in contact with infants ill with diarrhea make a distinction even in their minds of the simple and very infectious forms of bowel complaint? Even in institutions here in America where infants are taken care of, but little attention is given to the scientific examination of the infants' diarrheal movement before treatment is inaugurated. And yet our progress has been so great in the simple clinical diagnosis of the bacteriological characteristics of the infantile movement, that to-day it is an aid to the proper and rational treatment of these diseases that such examinations be made. Prognostic value is very great if we know to-day that streptococci are absent from a diarrheal movement and treatment is not necessarily as laborious in the simple diarrhea of the coli variety as in

the severer forms of streptococcal infection. A distinction is in fact imperative to-day not only for the sake of our sick charges outside of our Institutions but in institutions themselves to protect the healthy infants or those only mildly ill. This brings us to our present methods of caring for those infants in the summer months who are ill with diarrheal disease. We have two great methods of caring for these infants. The ambulatory method and the hospital or sanitarium method. By the ambulatoriums I refer to the great number of dispensaries and out-door services where these infants are treated. I think that the ambulatory treatment of summer diarrhea is thus far the most satisfactory. It does not presuppose conditions which I will show are conducive to increase rather than diminish the death rate. The sickest infants, those suffering from the severest forms of diarrhœa, can be rescued by this mode of taking care of these infants. The large mass of sick is divided up among many institutions. The infants, to reach the dispensary, must be taken in the open. This tends to the good of the little patients who can be carried even in a febrile state out of doors without detriment. Let me describe the facilities of a large ambulatorium which for the past fifteen years has been under my own immediate supervision. When an infant suffering from diarrhea is brought to this institution it is undressed and examined carefully, the movements are studied grossly and examined microscopically and bacteriologically in a small laboratory in connection with the service. After such examination the little patient is then taken into a second room, which is well equipped with all apparatus for the treatment of gastrointestinal disorders. The treatment over, most careful directions are given as to diet for the succeeding twenty-four hours. The mother is told to bring the patient again. When the patient is convalescent to a degree as to permit the use of milk, it is given a proper food from the laboratory in connection with the service. This laboratory, now in its tenth year, feeds fully two hundred infants daily all the year round. The principles on which it is conducted are calculated to meet the greatest number of cases possible. The milk from which the food is constructed is as flawless as possible. Cleanliness is the all-pervading feature.

The effect of the food on the patient can thus be closely observed, and the food may be altered, or any other food substituted if the same disagrees with the patient. The mother is

encouraged to persist in treatment by weighing the infant from time to time in order to demonstrate the improvement. The most important element in the modern management of these dispensaries for the treatment of summer diarrhea is this department for infant feeding, which I think should be established in connection with every dispensary service. It is not enough to give the patient a prescription and directions to go and get a food at some station or depot, and then leave the little one to the tender mercies of the mother and the bottle of sterilized, pasteurized or any other food. This, it seems to me, is a very rapid way of getting rid of much work, but it does not aid if it does not harm the patient. The feeding laboratory should be on the spot or easily accessible to the clinic, and the physician can thus in person supervise the quantity and quality of the food, weigh the infant from time to time, noting progress. Healthy infants as well as sick infants are harmed by the unrestrained use, uncontrolled by the physician, of food, no matter how good. The prescription laboratory method in direct conjunction with a clinic on infantile diarrheal disease is the only true method of obtaining any definite results. Nor should any infant either in health or disease, obtain food at any station, except upon a physician's order. I have frequently found it impossible to successfully carry out the treatment of sick infants, because the mother would insist upon supplementing my milk quantities with milk obtained elsewhere. The infant thus was harmed by over-feeding. In my clinic we go as far as to furnish the water, in separate portions or bottles of six ounce capacity necessary for the preparation of simple albumen water in cases in which the infant is unable to take milk. In this way even an ignorant mother is impressed with the importance of attention to detail, even in such a simple substance as water. I mentioned the clinical laboratory; let me point out to those outside of this distinguished body, who may read my words, that the clinical bacteriological examination of the feces of sick infants taught to us by Booker, Escherich and their pupils is one of the greatest advances in the true understanding of the clinical aspects of these cases. It is not simply a fad, it is of great value, if the movement reveals the absence of bacteria of a known virulent character such as streptococci. It also aids us in returning to a milk diet if we see the gradual disappearance from the dejecta of these dangerous elements.

The dispensary service should be equipped with apparatus which will enable the physician to acquaint himself with the above practical facts. A great advantage in the ambulatorium, even of large size, is that there is rarely a crowding or heaping up of serious infectious cases such as I will show must necessarily exist in hospital services. The rapid treatment of a large number of serious infectious diarrheas in a hospital even if carried out with greatest care is sure to result in infections being carried from the serious to the mild cases, either through the hands of the nurses, assistants or instruments. In a dispensary it rarely happens that the serious cases are in great numbers. The mass of cases are mild, the serious cases can easily be separated and treated with care, leisure and cleanliness. Thus among hundreds of small dispensaries a great number of infectious diarrheas can be treated without danger of infecting each other and with much better results than in one large institution. The absence of hospitalism is also a great factor.

In the summer the sickest infant is much better off on the street, taken daily to the ambulatory clinic if the clinic is equipped as above, than lying in the most elaborate hospital ward alongside of other infectious diarrheas. The heaping up of infections is the great danger element. Septic diarrheas with pneumonia seem in my hands to have done very well with the ambulatory treatment. In a brochure by Paul Ignard, Paris, 1899, we see that the mortality of gastrointestinal disorders treated in the hospital wards of Paris was very high, the cases almost all of them died. The ambulatory dispensary cases, speaking more especially of atrophy with chronic gastrointestinal derangement, did much better. The tendency in the hospital ward is to develop septic complications, such as bronchopneumonia or of a simple diarrhea to rapidly develop streptococcic features.

One of the most interesting brochures in recent years bearing upon the great dangers of the crowding together of nurslings in wards of hospitals is that of Heubner, of Berlin (*Sauglingsernährung und Sauglingsspitäler*, 1897: Berlin). Those who fondly think that the problem of the treatment of these bottle-fed infants suffering from gastrointestinal derangement is solved by the food question alone, either in the sterilization or pasteurization of the milk, should read this very carefully elaborated monograph. Heubner shows that cleanliness in the

feeding, separation of nurses into classes, by which the nurse who performs the infant's toilet is not allowed to feed the baby, has reduced the previous mortality of 80 to 90 per cent. to 65 or 70 per cent. But it must be noted that here there is a halt. Why such a great mortality of 65 to 70 per cent., which in some months Heubner shows even mounted higher? It was the crowding together of infection and infectious cases. By isolation of very sick diarrheal cases, by the construction of barracks in which fewer infants were treated and more nurses attended to the infants, he hoped to reduce the mortality still more. And there we leave this painstaking clinician battling with a difficult and discouraging problem. Why treat these infants in hospitals or sanitariums at all? I think many will answer that there are a number of destitute infants who for some reason or other must be treated in this way. Their mothers, on account of the severity of the struggle for existence, cannot leave work and attend to their offspring at dispensaries. I think this problem of mortality will never be solved as long as the present hospital ward system exists. I have seen discouraging results in sanitariums in which wards accommodating only four or six infants existed. There was every improvement, every facility that money could obtain and science suggest, and yet the infants lay in their cribs and the charts showed a daily loss of weight. How will this problem eventually be solved? To my mind, and I have given the subject thought and study, it can never be solved except on the colony or cottage or camping system, very much in the same manner that pulmonary cases are treated. I can conceive of a colony of huts, with plenty of air and light, each holding two beds and in bad cases one bed, separated from each other by sufficient ground spacing arranged on a high tableland, not necessarily near the sea, but on the contrary inland, where the air is not harsh but free from the heat of the city streets. Such small, primitive huts can be taken apart, disinfected and put up anew with each season. They should be arranged over acres of land around a central administration building, in which the physicians and nurses live and in which the food is prepared. The laundry should be built apart from all else. The mothers should live in the huts and conduct themselves much as they would in their homes; take their infants out into the open if ever so ill. At fixed times they can come to the central station and obtain their food and that of

their infants, as at a dispensary. At a stated hour the doctor and his assistants will be at the main building, and once a day the infant can be locally treated and prescribed for and the mothers taught to give the food and medicine and also cleanliness in the toilet and handling of food. In this way the herding together of very sick infants is avoided and the ambulatory system is imitated as much as possible. Very sick infants, of whom there may be one or six a day, are to be especially looked after. If an infant is improving, it should not be held too long in such a colony, certainly not over a week or ten days. It is then sent home to be treated at the dispensary. In all this I have in mind the breaking up of the ward system and the substitution of the cottage or hut or camp system, and this of the most primitive character. I have made it a colony for sick infants. I think the system in some of our cities of taking two or three healthy children with a mother and one sick infant into sanitariums is wrong, and open to objection. I have seen the healthy infants in such places develop a dangerous diarrhea from a house infection, having come to the sanitarium in a healthy condition. As to the nursing, it would be more of a supervisory than of an active character. The mothers would be taught by competent nurses how to wash their hands after caring for the diapers and to give the bath, food, etc. In this way the mother is educated and is the nurse for her infant and feels she is doing something for it. She would not be introduced, as she is to-day, into a barrack-like room full of beds, with other mothers, with the depressent features of such a place. Her cabin or hut would have every comfort in a primitive way; a small stove for a wood fire in damp, cold weather. The drainage must be from high ground and well planned, so that among the adult population no typhoid fever or dysentery may arise. The vicinity of the seaside is not necessary, in my mind. I am not an enthusiast for the damp, bleak days at the seaside which cause little epidemics of bronchitis and pneumonia among the infants when, as the natives say, the air is "too strong." Inland, even if somewhat warmer, on high ground, with plenty of shade trees, seems to me to be preferred in cases of weak infants as a site for such a camp. In such a camp I also presuppose that the physicians in their equipment have a clinical laboratory and the feeding will be conducted on principles laid down in the ambulatory treatment. The old method,

in some places the present way, by which a dozen or more infants are placed in a ward, even if the infants be practically out of doors in a piazza enclosure, must certainly have been very discouraging to those of us who have had occasion to attend such a service. The infants do not seem to thrive. They seem to infect each other either through the nurses or assistants. They lose in weight and baffle all our efforts at progress.

An advantage of the camp system is that, should any infant develop measles, scarlet fever, or diphtheria, it is by the system itself at the time in a condition of isolation and need not be moved, nor need others be disturbed or the business of the camp interrupted. And now let me say, that all the above is in the sense of suggestion. I am anxious to have the opportunity to see this system tried. It has the advantage of simplicity; it inculcates the principles of isolation of cases from each other, not by ward space alone but by sunlight and air. It allows of the application of our most advanced ideas to individual cases and is not as expensive as elaborate hospital pavilions, which do not aid us but rather increase our difficulties.

I will not take up the care of healthy infants in this address except to say that personally I am not in favor of housing healthy infants in large numbers in-doors any more than sick infants. Diarrheas are sure to crop up no matter how great the care observed. Thus, it does not aid us if, in order to treat a sick infant, we must take into an institution the mother and one or two healthy young infants who may develop diarrhea of a dangerous character in the institution. We may improve the sick, but we endanger to an extent the healthy.

There are many more minor methods of caring for the sick and even healthy infants in our large cities during the summer months. I have only written of those lines of work into which fate has thrown me. I have endeavored to awaken an interest in new channels:—To inculcate the importance of gross differentiation of forms of diarrhea, of isolation of these various forms, of cleanliness, of the dangers of overcrowding, and the evils of bringing the sick and healthy under one roof.

And here let me close, hoping that the future will open up a new scientific era in the management of the summer disorders of infancy among the poor which will contrast favorably with the discouraging history of the past.

THE CARE OF PREMATURE BABIES IN INCUBATORS.

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It has been customary to fix the period of viability of the child at twenty-eight weeks of intrauterine gestation. But this period undoubtedly varies within relatively wide limits. In this respect much depends upon the nourishment of the fetus prior to birth, the health of the mother during pregnancy, the conditions demanding or leading up to the interruption of pregnancy, the character and duration of labor, the difficulty attending its birth as well as the care of the infant after its advent into the world. In a syphilitic, tubercular or albuminuric mother, in a case of placenta previa, accidental hemorrhage or eclampsia, in a dry protracted labor, after a breech, forceps or version delivery, the chance of survival of the baby is very much reduced. There are no characteristic appearances, no exact development upon which we can definitely state the age of the infant when it is born. If it is alive, we should carry out the best rules for preserving its existence.

The clinical picture of a premature baby is very characteristic. The movements are very weak, the body is limp, the skin soft and delicate, considerably wrinkled in some places and in others so thin that the superficial veins shine through, the extremities, apparently emaciated from lack of adipose tissue. The lanugo is present and the nails are short. The head is large in proportion to the body, the abdomen prominent, due in a great measure to the relatively large size of the liver. The face is thin and peaked, the cry is short and low. The respirations are irregular and superficial, and often suspended for a time. The little one sucks slowly and weakly and swallows with difficulty. The tissues of the infant, especially the lungs and gastroenteric tract are not yet sufficiently developed to meet the demands of extrauterine life. In the former, even though the baby has cried fairly well, it only uses the anterior lobules of the lungs and is apt from slight causes to acquire a secondary atelectasis in addition to the fetal condition posteriorly. The function of digesting fats and proteids is in a much more undeveloped condition in the premature infant than in the one born at term, and, therefore, should not be depended upon to the same degree as in the older infant. Even absorption from the gastroenteric

tract is slow and deficient. The heart is weak and the foramen ovale is often patulous longer than if the infant were born at term.

The animal heat is very easily affected if the baby is kept in a low temperature, as the temperature becomes subnormal from excessive radiation and so its vitality is impaired. If the temperature of its surroundings is too high, it suffers from a hyperpyrexia which greatly increases its cell metabolism. The tissues of the nose, nasopharynx and mouth are very sensitive and cannot throw off the infections conveyed by dirt and dust. It needs plenty of clean, fresh air. There are, therefore, four problems in the care and management:

1. The maintenance of a proper temperature.
2. The prevention of exhaustion.
3. The administration of the proper amount and kind of nourishment.
4. The avoidance of infection.

At the Sloane Maternity Hospital we have three classes of premature infants: 1. Those treated as babies at term. 2. Those wrapped in cotton. 3. Those placed in the incubator.

The weight, length, appearance of the baby, and even the assumed period of gestation, judging from the mother's last menstruation, are simply relative in estimating the exact duration of fetal life. It is by far a better procedure to consider the general condition of the infant, together with the above, before we put it into one class or the other. The majority of the babies would do better if placed in the last class from the beginning. Unfortunately in the hospital we have had so few incubators that all cannot be given the best chance. At times indeed we have had as many as three infants in one couveuse. Our general rule is to put a baby in cotton whose weight is in the neighborhood of five pounds and surround it by hot bottles. If it does not thrive by these methods or if the temperature falls below normal, we put it in the incubator. Any premature baby weighing four and one-half pounds at birth or less, or if somewhat heavier but in poor condition is placed in the couveuse.

There are many kinds of incubators in use, notably those of Denuce, of Bordeaux, who in 1857 produced the first one which gave satisfactory results. In 1880 Tarnier constructed one, which was afterward improved by Auvar. Cr  d   also invented one which was successfully used.

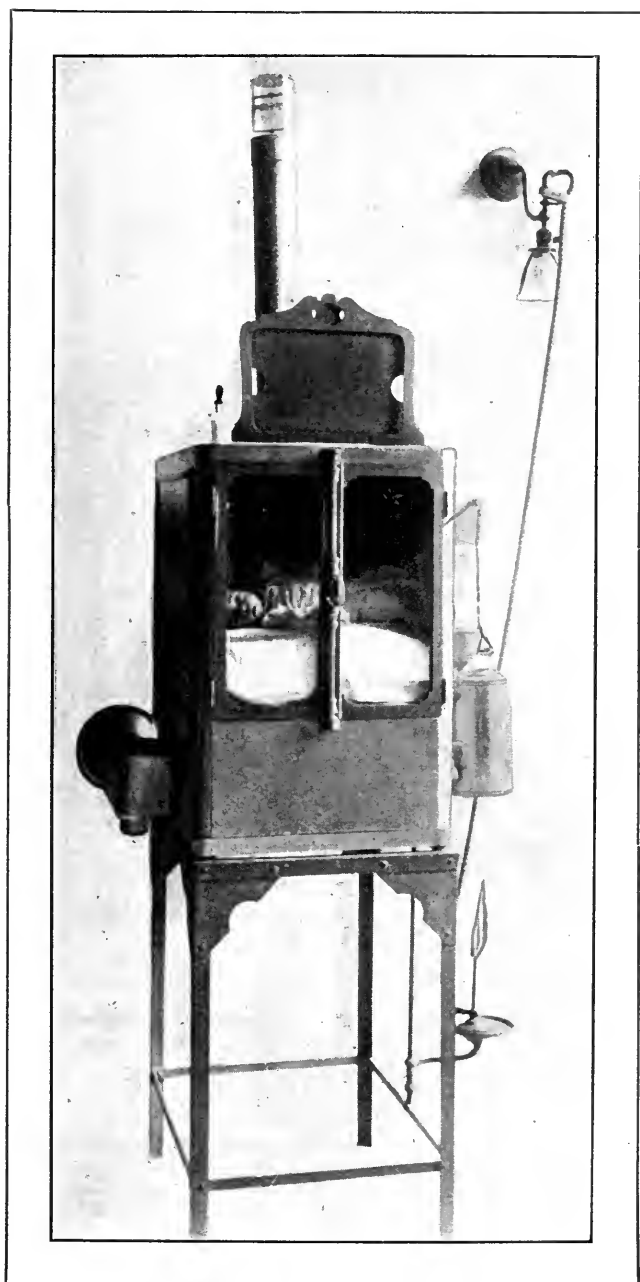


Fig. 1. LION INCUBATOR.

The brooder of Dr. Rotch of Boston, is a very intricate and elaborate affair, in which the baby can be weighed without removal.

The best one is probably that of M. Lion, of Nice, first used in 1891. It is composed of a parallelopiped of metal, standing on iron supports. It can be disinfected without deterioration by means of a steam-stove under pressure or by cleansing with a solution of carbolic acid or with formalin gas. (Fig. 1.)

Ventilation is obtained by means of a tube of about three inches in diameter, entering the compartment low down on the left side. The exit is through a chimney in which is a fan, indicating by its rotation the strength of the current of air. The air on entrance is filtered by a gauze and cotton diaphragm. The front is fitted with glass doors through which the infant can be seen, while at the side is a glass window by means of which the nurse can attend to the infant's wants without removal.

The baby is placed in the middle on a soft pillow, the warm, fresh air circulating about it. The air is kept moist by a large pan of water placed in the bottom. A thermometer is hung close to the door, and a hygrometer is fastened to the posterior wall of the chamber. The heating is effected by means of a siphon through which hot water circulates and which communicates with a reservoir at the side. The temperature is automatically regulated by a metallic thermostat, lifting or lowering a cap over a flame. This apparatus is very expensive, and, therefore, only adapted for use in hospitals or wealthy families. For the past year and a half, besides the Lion incubator, we have used at the Sloane Hospital a cheap modification of the Tarnier or Auvard couveuse, which any carpenter can make at a small expense. The main point in its construction is that there should be plenty of inlets and outlets for free ventilation. The disadvantages of this apparatus are, first the lack of filtration of the air, and second there is no thermostatic regulation of the temperature. The latter, therefore, needs careful attention and a temperature as near constant as possible is obtained by the size of the flame and its nearness to the tube connecting with the main tank of water. (Fig. 2.)

The incubator—whatever kind is used—should be placed in the hall or in a large, cool room to get the best fresh air. The direct rays of the sun ought never to strike it, because their heat would quickly unbalance a constant temperature. Before

putting a baby into the chamber the apparatus should be thoroughly disinfected, as these infants are very susceptible to infection. The baby should lie on a very soft pillow.

The temperature should vary with the infant. It should be one which would keep the baby's temperature normal without perspiration. We have found 86° to 92° F. to be about right. A variation of a degree or two makes but little difference. If a premature baby is expected, an incubator should be in readiness, and at a proper temperature at the time of its birth. The

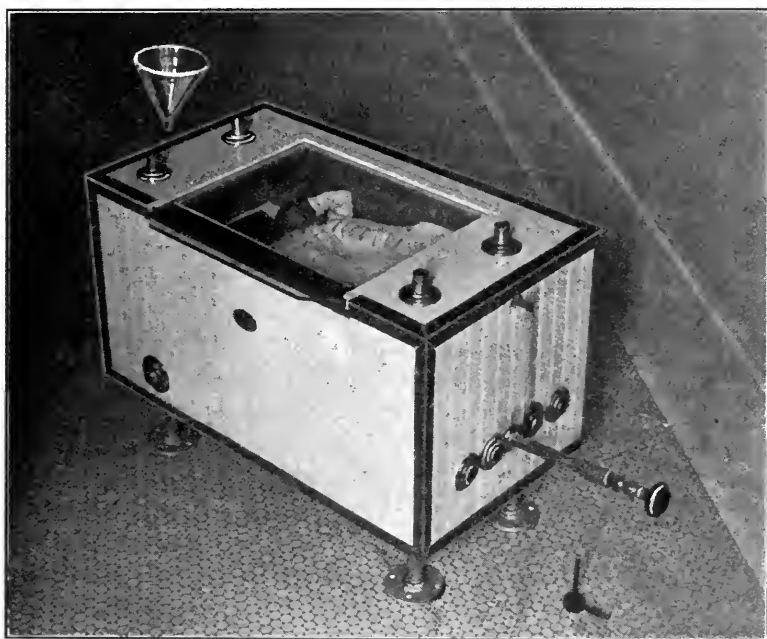


Fig. 2. CHEAP INCUBATOR IN USE AT THE SLOANE MATERNITY HOSPITAL.

baby itself, after having been made to cry lustily (not with harsh methods of resuscitation, but relying mainly on hot baths and light titillation, and perhaps easy swinging), is quickly tied off and the cord dressed. After having been weighed and anointed with albolene, but not bathed, it is dressed. A mistake is made in enveloping these infants in cotton. So wrapped up they will be too warm and will perspire too freely. The best clothing is a small light shirt and a napkin from the waist down, pinned over the feet and legs (Fig. 3.) When the baby is placed in the incubator it should not be removed, except to be weighed or to

nurse. The latter is not permitted until it is thriving. The weight is taken every five, seven or ten days, and about once a week the infant is lightly sponged.

The napkins should be changed three or four times a day, only often enough for cleanliness, disturbing the baby as little as possible. Before feeding, however, especially when the baby is stupid or sleepy, a light tap on the hand will make it take the bottle with much less coaxing and more rapidly.

The infant should be kept in the incubator until it has reached the development of full term, or longer if it is not improving. In many of our cases it was necessary, either for lack of room or at the demand of the mother, to remove them at a fairly early date. This, of course, added to our mortality. Some of the babies, nevertheless, will do well in cotton after having been given a good start in the couveuse. If possible the temperature of the incubator should be gradually lowered almost to that of the nursery before the baby is permanently subjected to the variation in the temperature of the air of an ordinary room.

In the administration of nourishment the amount and quality depends on the age and digestive powers of the infant. Ordinarily six hours after birth, they should be given a warm sugar solution, 5 to 6 per cent. lactose in distilled water, about 3js. to 3i. every hour. After twenty-four to thirty-six hours an equal part of breast milk is added. This is obtained by massage and expression, by the breast pumps or by spontaneous expression while a baby is nursing the other breast. This milk for the best results is not taken from the mother but from a wet nurse at least seven or eight days post partum, the quality of whose milk is about established, or at any rate a milk comparatively free from colostrum.

The amount is gradually increased a drachm at a time so that by the end of a week, the child is taking 3vi. to an 3i. every hour. If the stools are normal, the breast milk can be gradually increased and the sugar solution gradually diminished, or by the addition of a little lime water, the infant can often be put on pure breast milk at the end of two weeks. On this plan there should be little or no vomiting and the stools should be normal or nearly so from the beginning.

The method of feeding can in almost all cases be carried on by means of sucking through a small nipple, especially if a little coaxing is resorted to. In some cases a medicine dropper or a

feeder recommended by Rotch can be tried if the baby refuses to suck. In others who are extremely weak and who will not swallow, gavage is necessary. In our experience these cases do not do well, so that we like to get back to the bottle as soon as possible. The infants are apt to regurgitate, the milk fills the nares or nasopharynx, and when the baby takes its next inspir-



Fig. 3. CLOTHING FOR INCUBATOR BABY.

ation some of the fluid is drawn into the larynx and even into the bronchi. This may cause an immediate asphyxia, an atelectatic area in the lung, a bronchitis or a bronchopneumonia which will soon end in death.

As soon as the baby is strong enough and gaining, it can be tried at the mother's breast. At first two or three times a day

is sufficient. If it does well, the number of nursings is gradually increased to every two hours. At the same time it is generally necessary to feed in between and also supplement the nursing by the bottle.

Dr. Rotch says that the food, carefully prepared at the milk laboratories is the best method of feeding premature infants, even far superior to mother's milk. In our experience, although we have used some weak modifications of cow's milk as fat 1 per cent., sugar 6 per cent. and albuminoids .33 per cent., or even lower percentages, the results have not been satisfactory, except in a very few cases. We have relied mainly on diluted breast milk and have only employed cow's milk in weak proportions when it was impossible to obtain the former. In our opinion, our results would have been much poorer without the assistance of mother's milk.

These premature infants lose considerably more in proportion to their birth weight than babies at term. This is due to their immature digestive tract, also to the fact that they are almost invariably intensely jaundiced. They gain very slowly and if at the end of two or three weeks they have reached their birth weight, they have done unusually well.

In some of the babies the color is poor from the beginning and at any time they are especially liable to attacks of cyanosis. For these conditions a little slapping to cause a good cry or the administration of oxygen will dissipate the blueness. Often a few drops of brandy in hot water every two or three hours will prevent further trouble. One must be very sure, however, that nothing has been aspirated into the larynx.

A great danger in the care of these babies is their susceptibility to infections. The incubator itself is a great germ carrier and should be regularly disinfected. The weakness of the lungs and gastroenteric tract makes the infants especially vulnerable. Unless the air is filtered, dirt is carried in continuously, consequently the streptococcus, staphylococcus and pneumococcus are always present, seeking an avenue of entrance. Through the skin in eczematous spots or in areas of irritation, at the navel, through the eyes, nose, mouth, larynx, lungs, stomach and rectum the bacteria can gain admission. To prevent infection then the most careful cleansing is necessary both of the incubator and the baby itself. Undoubtedly most of the deaths of our cases could be traced to this source.

Finally, in the carrying out of the above essentials in the

proper management of the premature infant, we require the most patient and painstaking attention on the part of the nurse, and upon her conscientiousness depends the chance of its survival.

Results.—The statistics are taken from 2,314 births which occurred at the Sloane Maternity Hospital in the two years from October 22, 1897, to October 22, 1898, before which time there had been no incubator in use.

Four hundred and ten of these babies were premature, but of these 74 were still-births, which include macerated fetus, the still-born babies of cases of placenta previa, accidental hemorrhage, eclampsia and the like, leaving 336 for treatment.

Among these cases was a set of triplets and there were 18 pairs of twins; 85 were treated as infants at term, and of these 4 died—a mortality of $4\frac{1}{4}$ per cent.; 145 were put in cotton, and of these 12 died—a mortality of 8 per cent. Some of this class should have been placed in the incubator, but for lack of room it was impossible; 106 were incubator babies.

These are divided into two classes: I. Those that died within four days of birth. II. Those that lived longer than four days.

I. Twenty-nine of the incubator babies died within four days. All of these but 3 were more or less asphyxiated at birth; 9 were breech cases, and of these 5 were difficult extractions; 3 after an accouchement forcé in placenta previa. The rest were vertex presentations, but of these 2 were forceps deliveries; 6 were under seven months of uterine gestation; 22 were between seven and eight months along, and 1 eight and a quarter months.

The etiology of the premature labor was an endometritis in 14; syphilis in 2; albuminuria in 1; placenta previa in 3; accidental hemorrhage in 1; persistent vomiting in 1; twin in 1; violence in 1; and in 4 the labor was induced. The largest baby weighed $5\frac{2}{3}$ lbs.; the smallest, $2\frac{7}{16}$ lbs. Only 5 infants lived over twenty-four hours; 24 were in such poor condition at birth that they survived only a few hours. In 16 autopsies were held, and in all of these there was marked atelectasis; in 7 hemorrhages of some degree, either into the brain or into the serous membranes; in 2 the foramen ovale was still patent.

II. Seventy-seven incubator infants survived the first four days; 51 were children of primiparæ, 27 of whom were out of wedlock; 3 infants were under seven months of gestation; 8 were over eight months, and the rest between seven and eight months along; 9 were breech presentations; 1 a transverse and the rest vertices; 2 were of triplets associated with albuminuria; 18 were in twin deliveries, associated with albuminuria or hydramnios. The cause of the premature labor was endometritis in 27; syphilis in 4; phthisis in 2; albuminuria in 7; accidental hemorrhage in 1; placenta previa in 1; in 2 the labor was induced for albuminuria and eclampsia; 1 was a Cæsarean section; another an ectopic gestation; the cause of the rest was unknown. Seven were delivered by forceps; 2 by a version; 1 by accouchement forcé; 1 by Cæsarean section, and the ectopic gestation by a laparotomy; 12 were slightly asphyxiated at birth; 9 moderately so, and 5 deeply asphyxiated; 2 after one and a half hours' work of resuscitation, were put in the incubator head downward, and their condition was so poor that they were expected soon to die, but they left the hospital gaining in weight; 5 weighed less than 3 lbs.; 38 between 3 and 4 lbs.; 33 between 4 and 5 lbs.; 1 over 5 lbs.; the average weight was $3\frac{1}{3}$ lbs. During their incubator life 28 had one or more attacks of atelectasis. All but 10 were more or less jaundiced. The initial loss of the infants was from 1 to $17\frac{1}{2}$ ozs.; the average was 7 ozs. These figures are not quite correct, as the babies were weighed at different intervals, some on the fifth day, some on the seventh day, and others not till the fourteenth day.

The period of loss was from five to twenty-two days, the average, eleven days; 10 lost steadily till death; 1 baby was in the incubator only three days, while another lived there eighty-two days. The average time was nineteen days. Some were removed early to make room for others who needed the place more urgently.

Only 3 of the 77 cases vomited. The stools were normal in 32.

One was discharged from the hospital as early as the eleventh day, and others also too soon at their mothers' demand. One was 89 days old, the average was 24 days.

In 16 diluted breast milk was supplemented at times, with a mixture of cow's milk and water with Russian gelatine and lactose. In 10 a 1, 6, .33 modification was used. In all the rest diluted breast milk was relied upon. Twenty-seven never nursed

at the breast, of these 12 died. A few nursed as early as the third or fourth day, two or three times a day. Others not for three weeks, and one not till the sixty-eighth day. Of the 77, 13 died in the hospital, a mortality of 16 per cent. The cause of death was atelactasis and bronchitis in 7, acute asphyxia from a curd in the larynx in 1, syphilitic pneumonia in 1, cerebral hemorrhage in 1, gastroenteritis in 3 and a patent foramen ovale and ductus arteriosus in 1. The condition of 3 was poor at time of discharge, fair in 24 and very good in 37; 32 were above their birth weights and 57 were gaining in weight. To letters written about January 1, 1900, no answer was obtained from 28. Thirteen were reported as having died, 1 of these lived fourteen months, 1 nine months, 1 four and one-half months, 3 lived two months, 6 lived six weeks, 1 only a month. Five of these children died at the Nursery and Child's Hospital and 2 died at Bellevue Hospital. They were bottle-fed and the probable cause of death was gastroenteritis. Twenty-one were found to be *alive* and doing well. Some had nursed and the others were bottle-fed. The oldest baby was twenty-two months and almost all were good, healthy children. One baby at seven months weighed 16 lbs. It weighed $4\frac{1}{8}$ lbs. at birth and nursed its mother after leaving the hospital. The ectopic and the Cæsarean babies were in beautiful condition.

STATISTICS.

Incubators	Tarnier	Charles	Sloane Hospital	At the Sloane Hosp. not counting those which died in a few hours
Saved at 6 months	16 per cent.	10 per cent	—	—
“ “ $6\frac{1}{2}$ “	36 “ “	20 “ “	22 per cent.	66 per cent.
“ “ 7 “	49 “ “	40 “ “	41 “ “	71 “ “
“ “ $7\frac{1}{2}$ “	77 “ “	75 “ “	75 “ “	89 “ “
“ “ 8 “	88 “ “	—	70 “ “	91 “ “

From this table our statistics are not as good as Tarnier's unless we omit those babies who were in very poor condition at birth and who died in a few hours.

These cases occurred during the services of Drs. James W. McLane and Edwin B. Cragin, with whose kind permission I report them.

I.—CASES WHICH DIED WITHIN FOUR DAYS.

No.	Month of Gestation	Etiology	How Born	Condition at Birth	Weight	Age at Death	Cause of Death
1	7	Endometritis	Spontaneous	Deep Asphyxia	3 lbs. 15 ozs.	3 days	Atelectasis.
2	7	Syphilis	"	Slight	" 13½ "	20 hours	"
3	7	Endometritis	"	Deep	" 7 "	22 "	"
4	7¾	"	"	Mod.	" 14½ "	19 "	"
5	8	"	"	"	" 4 "	24 "	"
6	8	?	"	"	" 5 "	24 "	"
7	7	Endometritis	"	Deep	" ½ "	20 "	"
8	8¼	Induc'd for Cont. Pelv.	"	"	" 8½ "	3 days	"
9	7	Endometritis	"	Mod.	" 5 "	20 hours	"
10	6¾	60 g Albumin	"	Deep	" 3 "	7 "	"
11	7	Placenta Previa	"	"	" 2½ "	20 "	"
12	6¾	Twin No. 1 Hydram.	Version	Slight	" 9 "	3 days	"
13	7¾	Induced for Asthma.	Spontaneous	Mod.	" 1½ "	39 hours	"
14	7¾	Endometritis	Extraction	"	" 4 "	23 "	"
15	8	Induc'd for Cont. Pelv.	Dil. Cervix	Slight	" 5 "	27 "	"
16	6¾	Syphilis	Spontaneous	Deep	" 13½ "	4 "	"
17	7	?	"	Slight	" 1½ "	3 days	"
18	7	Plac. Previa	Accouch. Forcé	No	" 13 "	5 hours	"
19	6¾	Induced, Chr. Endoc.	Dil. Cervix, Forceps	Deep	" 14½ "	5 "	"
20	7	Endometritis	Spontaneous	Slight	" 14 "	5 "	"
21	7	Acid. Hem.	Dil. Cervix	No	" 2 "	14 "	"
22	7	Endometritis	Extraction	Deep?	" 7 "	1½ "	"
23	6¾	"	Spontaneous	Slight	" 2½ "	15 "	"
24	6½	"	"	"	" 1 "	4 "	"
25	7	Riding Bicycle	"	Deep	" 7 "	5 "	"
26	7½	Endometritis	Dry Labor, Forceps	"	" 5½ "	21 "	"
27	7½	Plac. Prev.	Accouch. Forcé	Slight	" 14 "	2 "	"
28	7	Endometritis	Prolapse Cord.	"	" 15 "	3½ days	"
29	8	Persistent Vomiting	Spontaneous	No	" 15½ "	20 hours	"

II.—CASES LIVING MORE THAN FOUR DAYS.

No.	Month of Gestation	Etiology	How Born	Condition at Birth	Weight	Days in Incubator	Age in Days at Discharge	Gain or loss in oz. on Birth Weight at Discharge	Notes (Subsequent History)
1	7	Album., Triplets	Spontaneous	Good	3 lbs.	15	18 *	— 4	} Not in Incubator till 3d day— Gaining. Died of Bronchitis and Atelectasis.—Autopsy. || Transferred to Lion Institute— Doing well at 2 months.
2	7	"	"	"	"	12	15 *	— 6½	
3	7¼	Moth. 15 yrs. old	"	"	2 " 11 ozs. 2 " 13½ "	14	14	— 4½	
4	7	Accid. Hem.	"	Mod. Asphyx.	3 " 5½ "	20	24 *	+ 10	|| Pipette used in 6 days. At 20 mos. doing well. Nursed for 12 mos. (Bottle partly).
5	8	Twin No. 1	Dil. of Cervix	Good	3 " 10 "	20	21	— 5½	
6	7½	Twin No. 2	Spont.	"	3 " 11 "	14	16	+ 3	
7	7½	Endometritis	Repos. of Hand	"	4 " 6 "	14	14	— 1½	|| Gaining. Sent to Nursery & Child's Hospital. 9 lbs. at 8th mos. Died there 14 mos. old.
8	8	Twin, Hydram.	Low Forceps	"	3 " 11 "	26	26	— 1	
9	8	"	Spont.	Deep Asphyx.	3 " 4 "	26	26	+ 2	
10	8	Endomet.	Dry Labor	Good	5 " 4 "	7	31	— 6	|| Gaining. Put in Incubator for Bronchitis. Died 7 days after discharge. Bron- chitis.
11	8½	Twin No. 1	Low Forceps	"	4 " 6½ "	15	15	+ 1½	
12	7½	?	Spont.	"	4 " 9 "	15	22	— 1	
13	7¼	Endomet.	"	Sl. Asphyx.	3 " 5½ "	15	15 *	— 9	|| Gaining. + Autopsy. (Patent Duct. Arteriosus and Foramen Ovale). || Gaining. Snuffles.
14	8	"	"	Good	4 " 12 "	15	16	— 2	
15	7½	Salpingitis	"	"	4 " 8½ "	18	21	— 4	
16	8	Album.	"	"	4 " 12 "	14	20	— 3½	|| Gaining. Autopsy (Atelectasis and Bronchitis) || Gaining.
17	7	"	"	Mod. Asphyx.	3 " 1½ "	14	15 *	— 6½	
18	6¾	"	"	Sl. Asphyx.	2 " 13 "	20	20	— 1½	
19	7¾	Twin	P. Pod. Version	Good	4 " 6½ "	16	16	+ 4½	|| Gon. Ophthalmia at birth. Cured. Sent to Nursery & Child's Hospital. Died there 9 weeks old.
20	7¾	"	"	Sl. Asphyx.	4 " 13 "	8	16	— 5	
21	7½	Endomet.	Spont.	Deep Asphyx.	4 " 4½ "	17	30	+ 11½	
22	7	Album.	"	Good	3 " 4½ "	16	24	— 3½	
23	7	Endomet.	Repos. of Cord	"	2 " 15½ "	14	14	— 8½	

* Cases which died. || Cases which could not be traced. + Cases which were discharged at mother's demand.

II.—CASES LIVING MORE THAN FOUR DAYS.—*Continued.*

No.	Month of Gestation	Etiology	How Born	Condition at Birth	Weight	Days in Incubator	Age in Days at Discharge	Gain or loss in oz. on Birth or Weight at Discharge	Notes (Subsequent History)
24	8	?	Spontaneous	Deep Asphyx.	4 lbs. 14 ozs.	7	23	+ 2½	Asphyxia, 1½ hrs. Gavage for 2 days. Aug. 18, '99. Fine baby. 14 mos. old. (Nursed). Died 1 week after discharge.
25	8	Twin, Hydram.	Low Forceps	Good	3 "	21	28	+ 1	|| Gaining. Died 6 wks. old. Nursed and bottle fed. Cause "Dropsy."
26	7½	Endomet.	Spontaneous	"	4 " 3½ "	13	16	+ 6½	||
27	7¾	Twin, Album.	"	"	4 " 3½ "	14	18	— 5	|| Gaining. + Died when 6 weeks old. Fed on Borden's Milk.
28	7	Phthisis	"	"	3 " 9 "	14	14	— 8	|| Gaining. Healthy. Died there 2 mos. later at Nursery & Child's Hospital.
29	8	Endomet.	"	"	3 " 15½ "	23	23	+ 1½	|| 4½ mos. old
30	7	"	"	Sl. Asphyxia	3 " 8 "	11	11 *	— 7½	|| Autopsy (Cerebral Hemorrhage).
31	8	Album.	"	Good	4 " 8 "	3	11	+ 4	|| Gavage 12th-15th day.
32	7	?	"	"	5 " 8 "	30	30	— 5	|| Gaining. Nursery & Child's Hosp. Died at 2 mos. old.
33	7	Endomet.	"	"	3 " 9½ "	21	26	— 1	|| Gaining.
34	7½	"	"	"	4 " 1 "	11	14	+ 4½	|| Apr. 18, '99. 7 mos. old. Weighed 16 lbs. Nursed.
35	7¾	Phthisis	"	Mod. Asphyx.	4 " 4 "	10	17	+ 3	|| Died of Gastroenterocolitis.
36	8¼	Twin, Hydram.	Induc. of labor	Good	4 " 12 "	18	18 *	— 19½	|| " " Gavage for 3 days.
37	8¼	"	"	Sl. Asphyxia	4 " 13½ "	18	18 *	— 23½	|| " " Gavage for 3 days.
38	8¼	Cesarean sect.	Cesar. sect.	Good	4 " 9½ "	15	34	+ 2½	|| 9 mos. healthy, 7½ lbs. bottle fed.
39	8	?	Spont.	"	4 " 4½ "	6	14	+ 8½	||
40	7¾	Album.	"	"	4 " 1½ "	13	13 *	— 12	|| Gavage 3 days. Enterocolitis. (Autopsy).
41	7	Endomet.	"	"	3 " 9½ "	33	36	— 4½	|| Gon. ophthalmia at birth. Cured.
42	7	Syphilis	"	"	3 " 12½ "	15	15 *	— 12½	|| No autopsy (atelectasis).
43	8¼	Endomet.	"	"	4 " 3 "	8	14 ½	— 18½	|| + Discharged against advice.
44	6½	"	"	"	2 " 11½ "	8	8 *	— 9½	|| No autopsy (atelectasis).
45	8	"	"	"	4 " 6½ "	10	18	+ 2	|| 8 mos. old. Fine baby. Nursed.
46	7	"	Version	Mod. Asphyx.	3 " 5 "	18	18	— 3½	|| Gaining. 9 mos. (9 lbs.) Nursed. Cow's milk at 6 mos.
47	7¼	"	Extraction	"	3 " 12½ "	15	15	— 8½	|| Gaining. 2½ mos. old. (Healthy).

48	6 3/4	Twin, Hydram.	Spont.	Good	2 lbs. 15 1/2 ozs.	23	+ 5 1/2	Gaining. Bottle. Died 2 mos. Gastrointestinal Catarrh.
49	7 1/2	Endomet.	Dry Labor	Mod. Asphyx.	3 " 14 1/2 "	24	+ 6 1/2	
50	7 3/4	"	Spont.	"	4 "	21	-	
51	8 1/4	Ind. Lab. Eclampsia	Acc. Forcé	Deep	4 " 9 1/2 "	37	+ 4	Died 6 wks. Fed on ordinary cow's milk.
52	7 1/2	Endomet.	Spont.	Good	3 " 13 1/2 "	23	+ 3	No autopsy. Atelectasis.
53	7 1/4	"	"	Sl. Asphyx.	3 " 13 "	7 *	- 14	
54	7	"	"	Mod.	4 " 1 "	38	+ 7 1/2	
55	7	Syphilis	"	Good	3 " 4 "	35	+ 4	Died at Bellevue. 6 wks. old.
56	8	Endomet.	"	"	4 " 9 1/2 "	21	+ 2 1/2	Gaining. 4 mos. 11 3/8 lbs. Nursed.
57	8 1/4	?	"	"	4 " 12 1/2 "	17	- 5	"
58	7 1/4	Endomet.	"	"	3 " 10 "	22	- 3	
59	7 1/2	"	"	"	3 " 12 1/2 "	17	+ 3 1/2	
60	8	?	"	"	4 " 8 "	17	+ 1	
61	7 1/2	?	"	"	4 " 6 "	29	- 6	
62	8	Endomet.	"	Mod. Asphyx.	4 " 5 "	19	- 7 1/2	Gaining. Died at Bellevue. 9 wks. Blue baby. 3 mos. 7 1/4 lbs. Condensed milk.
63	7 3/4	Twin	Forceps	"	4 " 1/2 "	23	- 5	Gaining. 11 weeks. 5 1/2 lbs. Nursed and bottle.
64	7 3/4	"	Spont.	"	3 " 2 1/2 "	23	- 4	Gaining. 11 wks. 5 lbs. Nursed and bottle.
65	7 1/2	?	"	Good	4 " 7 1/2 "	19	- 1	Gaining. 9 wks. Healthy. Nursed.
66	7 1/2	?	"	"	3 " 14 1/2 "	14	same	Gaining. 8 wks. 8 lbs. 5 ozs. "
67	7 3/4	Hydram.	Protract Labor	Deep Asphyx.	3 " 13 "	19 *	- 9	Autopsy. Asphyxiated by curd in Larynx.
68	7 1/4	Twin	Spont.	Good	3 " 7 "	38	+ 7	Healthy at 7 weeks. "
69	7 1/4	"	"	Sl. Asphyx.	3 " 8 1/2 "	38	+ 3	"
70	7 1/4	Endomet.	"	Good	3 " 10 1/2 "	23	- 9 1/2	"
71	7	Album.	"	Mod. Asphyx.	3 " 15 "	20	- 6	"
72	7	Plac. Previa	Med. Forceps	Good	3 " 5 "	13	- 2	"
73	7 1/2	Twin	Low "	Sl. Asphyx.	3 " 6 "	21	- 2	"
74	7 1/2	"	Spont.	"	3 " 11 1/2 "	18 *	- 14 1/2	Autopsy. Bronchopneumonia. Atelectasis.
75	7	Syphilis	"	Good	3 " 5 "	89	+ 1	Transferred to Nursery & Child's Hospital. Well. Jan. 1, 1900.
76	8 1/2	Ectopic	Laparotomy	"	4 " 3 "	93	+ 49	Autopsy. Syphilitic Pneumonia. Atelectasis.
77	7 3/4	Ind. Labor, Alb.	Med. Forceps	"	4 " 13 1/2 "	31	+ 1	A beautiful baby. Jan. 15, 1900. Bronchitis.

* Cases which died. || Cases which could not be traced. + Cases which were discharged at mother's demand.

LITERATURE.

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Renal Lithiasis in Children.—In this communication (*Bulletin Medical*) Comby states that he has noted evidences of renal lithiasis in 100 out of 600 necropsies of infants, in two years, but not a single case of biliary lithiasis. Uric infarcts have even been noted in stillborn infants. The renal lithiasis is not hereditary, but acquired from improper or insufficient food. Most of the children were atrophied, dehydrated and with infections favoring acidity and concentration of the urine and precipitation of urates. In 48 examined more closely, 31 were boys and 17 girls; 28 were under six months old; 18 between six and twelve months and 2 between one and two years. Diarrhea was noted in 29; vomiting in 24; athrepsia in 14; various eruptions in 28 and rapid decrease in weight in 25. Symptoms are obscure on account of the age; nephritic colics are rarely recognized. Convulsions, dysuria, screaming, restlessness can sometimes be connected with the renal lithiasis. If the children survive their athrepsia, the calculi may persist and lodge in the urinary passages. The lithiasis of the youth and the adult may date from the earliest infancy. Prophylaxis consists in appropriate food and drink; in case of fever, copious enemata of water, or injections of artificial serum if there is gastric intolerance. A course at some watering-place is advisable in case of confirmed lithiasis.—*The Journal of the American Medical Association*. Vol. xxxiv., No. 3.

TUBERCULOSIS OF THE FEMALE GENITAL TRACT IN CHILDREN.

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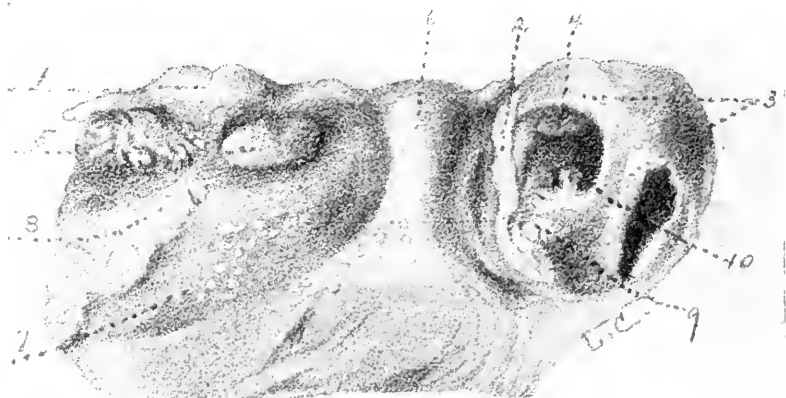
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In the absence of a clinical history the following case must of necessity remain incomplete, but the pathological condition is of sufficient interest to make the report of value.

The case is that of a little girl, two years old, an inmate of the Infants' Hospital on Randall's Island, who had had measles followed by persistent cough and emaciation. A purulent vaginal discharge had been noticed for several weeks before death, but no bacteriological examination had been made.

The autopsy was performed more than twenty-four hours after death, and as the body had not been kept on ice, no cultures were taken. The *body* was of average size, emaciated and without skin lesions. The *brain* showed some congestion of the pia mater, and edema over both frontal lobes; no tubercles. Over the lower lobe of the *left lung* there was an acute fibrinous pleurisy, the lobe itself being almost completely solid with an unresolved bronchopneumonia; areas of recent bronchopneumonia were present in the *right* middle and lower lobes. A marked purulent bronchitis existed in both lungs, and discreet miliary tubercles were scattered throughout the substance of all the lobes; both apices were well aerated; there was emphysema in the anterior portion of the upper lobes. The *bronchial lymph nodes* were all enlarged and cheesy, not softened; the largest were on the right side, measuring 3 cm. in length. The *heart* was normal. There were a few small tubercles in the *liver*, many in the *spleen*. The *kidneys* were red and smooth, with blurred markings and adherent capsules, but no tubercles. The *supra-renal capsules*, *ureters* and *bladder* were normal, as were the *pancreas* and the *stomach*. The solitary follicles were enlarged throughout the *colon*, but there were no ulcers in any portion of the intestinal tract; and the *mesenteric lymph nodes* were neither enlarged nor cheesy. The peritoneal surface of the *rectum* was covered with a fibrinopurulent exudate and studded with tubercles, which were scattered over all the *pelvic peritoneum*. In the right broad ligament was a fluctuating mass, 4 x 6 cm. in diameter, distinctly separate from the uterus,

and at first sight obscuring the right tube and ovary. This mass contained pus of a green color, and had bent the right Fallopian tube out of its normal course, so that it curved downwards and backwards over the posterior surface of the abscess, where the ovary was found in a practically normal position, touching the dilated fimbriated extremity of the tube and overlapped by the upper portion of the swelling. (See drawing). This ovary was 2.5 cm. long, and on section an irregular zone of cheesy matter was apparent at the periphery, the centre being firm and white. On the left side the Fallopian tube was dilated to three times its normal size, but the ovary was not abnormal.



1. LEFT FALLOPIAN TUBE. 2. RIGHT TUBE, BENT DOWNWARDS. 3. ABSCESS IN RIGHT BROAD LIGAMENT. 4. RIGHT OVARY. 5. LEFT OVARY. 6. UTERUS. 7. TUBERCLES ON PERITONEUM. 8. PURULENT EXUDATE. 9. FIMBRIATED EXTREMITY OF RIGHT TUBE. 10. INCISIONS INTO ABSCESS.

On section both tubes contained cheesy material. The uterus was normal in size, and its mucous membrane healthy in appearance. The serous coat contained many small tubercles; upon separating the adhesions which bound it to the rectum, a second pus pocket was exposed, evidently occupying the cul-de-sac of Douglas. There was no general peritonitis. The cervix uteri was normal; there were no ulcers on the vaginal mucous membrane, and the vulva was also normal. Some purulent exudate was found in the vagina, preparations from which contained tubercle bacilli in small numbers and groups of round cocci not decolorized by Gram's stain. Tubercle bacilli and staphylococci

were also found in the pus from both collections in the pelvis; no gonococci were present. The cheesy contents of both tubes contained tubercle bacilli, and so did the bronchial lymph nodes.

On microscopical examination the *vagina* showed some desquamation of its lining epithelium, but no deeper lesion. The *left ovary* was normal. The *right ovary* was covered with a layer of cheesy material extending into the cortical layer, where there were many miliary tubercles which had undergone cheesy degeneration and did not involve the medulla. Infection had evidently occurred by direct contact with the peritoneum which formed the wall of the large abscess. In both Fallopian tubes the mucous membrane was converted into a cheesy mass, all epithelial structure being lost; the muscular coats were infiltrated with small round cells, and the serous coat was edematous, several times thicker than normal, and contained very many tubercles. The wall of the larger pelvic abscess (in the broad ligament) was formed of connective tissue infiltrated with pus cells and closely studded with tubercles which had become confluent in places and formed small, irregular cheesy masses. The rectum showed very marked degeneration of its lining epithelium, but no ulcers; its peritoneal coat was edematous, contained many tubercles, and on its free surface there was a layer of pus. Sections from various portions of the lungs showed a recent and an old bronchopneumonia, and very discreet tubercles with many giant cells. One of the bronchial lymph nodes (right side) contained a central mass of cheesy degeneration, lying in which were some small areas of calcification, while a number of young tubercles surrounded its periphery.

Tubercle bacilli in small numbers were found in sections from both tubes, the peritoneum and the lung. It is clear, both from the gross appearance and the microscopical study, that the oldest tuberculous lesion in the body was the one in the bronchial lymph nodes, the youngest in the lungs, spleen and liver. The Fallopian tubes, pelvic peritoneum and right ovary became involved, in the order named, before the other viscera. The fact that the vaginal discharge was not examined during life cannot be sufficiently deprecated. Vierordt calls attention to the fact that even in children a genital tuberculosis, evidenced by a tuberculous vaginal discharge, may be the beginning of a tuberculous peritonitis; and so he interprets the case of a girl six and a half years old, who had an odorless, purulent vaginal dis-

charge some months before the symptoms of tuberculous peritonitis appeared. As the girl was cured, nothing further is known of the genital lesion.

The earlier reported cases of tuberculosis of the female genital tract in children are rendered of doubtful value because of the absence of a microscopical examination. Since Talamon described his case, seventeen others have been reported, including mine. Only one (Demme) was less than a year old; five were between one and two years, five between two and three, three from four to five; two were six; one was nine and one thirteen years old. It is a curious fact that in the earlier cases, the ovaries are described as cheesy in six, while in the most recent studies the ovaries are diseased in only two. In Talamon's case a girl six years old died of tuberculous meningitis and had a tuberculous pelvic peritonitis due to the rupture of rectal ulcers into the rectouterine excavation, which was filled with pus. The ovaries were both cheesy and the uterus was dilated with green, viscid pus.

As no pelvic abscess is noted in any of the other cases, the present one is unique in that two abscesses, one in the right broad ligament, one in the cul-de-sac of Douglas, were present. Audion mentions a mass of cheesy lymph nodes occupying the cul-de-sac. Cheatle describes a case of double pyosalpinx with an abscess in the left broad ligament, occurring in a child one and three-quarter years old, who had tuberculosis of the right lung, spleen, liver and peritoneum.

Tuberculosis peritonitis, general (10 cases) or pelvic (2 cases), is noted in every case involving the Fallopian tubes, uterus or ovaries. On the other hand, in the 6 cases affecting the vulva and vagina without the remainder of the genital tract, the peritoneum remained healthy.

Tuberculous salpingitis in children is almost always double. Schmitz reports a case in which the left tube only was dilated with cheesy masses, the right being normal. The predominating form of tubercular lesion in the tubes seems to have been the chronic diffuse (Williams), while the acute miliary is noted in 1 case (Frerichs, quoted by Maas) and the chronic fibroid not at all. The tubes were involved in 10 cases, the uterus in the same number, although in 2 (Talamon and Mosler) the uterine contents are described as thick pus and not as cheesy matter.

Vaginal tuberculous ulcers occurred in 5 cases, being single at the introitus vaginæ in two, both of which recovered. In Demme's case, seven months old, the father had tuberculosis and the child became infected through lack of care; in Schenk's case, the child had a tuberculous playmate, and probably infected herself with her own fingers. In another one of Demme's cases there were three vaginal ulcers, the source of contamination being the sputum from the tuberculous pneumonia which caused the child's death. Demme's third case had a healed ulcer on the left labium, and a recent one in the vagina; death resulted from tuberculous meningitis. In the case of v. Karajan, the amputation of an enlarged and tuberculous clitoris was followed in a year by extensive ulceration at the vaginal entrance. There were tuberculous ulcers on the labia, preputium clitoris, and inferior surface of the mons veneris of a six year old child reported by Küttner; extirpation effected a cure. In none of these 6 cases did the tuberculous process ascend beyond the vagina, and in none of the remaining 12 were the cervix uteri, vagina or vulva diseased, proving the extreme rarity of ascending tuberculous infection of the genital tract in children.

The order of frequency of involvement of the different organs differs slightly in childhood from that given by Williams for adult life, and is as follows: tubes, uterus, vagina, vulva, ovary, cervix.

The genital lesion in children may be primary or secondary; nine of each variety have been reported. Primary infection may occur by direct contact of the tubercle bacilli with the vulva or vagina, and the source of contamination can then usually be found in the child's immediate surroundings. Or the tubercle bacilli may be carried primarily to the tubes or uterus by the blood, without the appearance of any lesion at the point of entrance. Audion's case would seem to belong to this category, the oldest lesion being in the Fallopian tubes, and all the visceral lesions of more recent date. Secondary infection may occur from a primary lesion in any part of the body and may affect the genital tract directly, as in the case of a year old baby reported by Constensoux, where the tracheobronchial lymph nodes were the oldest seat of the tuberculous process, and the Fallopian tubes were involved before the peritoneum; or the tubes and uterus are affected only after a tuberculous peritonitis has been developed. Maas' case is interesting in this connec-

tion. At the autopsy of a girl five years old, two bands of fat and connective tissue, containing many blood-vessels and fibroid tubercles were found running from the umbilicus outward along the inner surface of the abdominal wall. These had evidently resulted from the entrance of tubercle bacilli through the open umbilicus in earliest infancy, and had carried the infection to the peritoneum, whence it had passed to the tubes and uterus. Again, secondary infection may occur from the intestine, the bacilli wandering into the vagina; or, falling into the peritoneal cavity from the peritoneal surface of an intestinal ulcer, they may be carried into the Fallopian tubes and uterus with or without the appearance of a tuberculous peritonitis. An intestinal ulcer may also rupture into the peritoneum (Talamon's case) or into the vagina. Finally, an ulcer in the bladder may rupture into the vagina.

I am indebted to Dr. Louise Cordes for the drawing of the gross specimen.

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THE APPLICATION OF A RATIONAL SURGICAL TECHNIQUE TO THE REMOVAL OF THE FORESKIN.

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That the operation of circumcision presents some difficulties to the surgeon quite out of keeping with the comparatively trivial nature of the operation, is sufficiently evidenced by the multitude of devices which have been adopted by various operators to facilitate its performance in a neat and expeditious manner. These difficulties are due, primarily, to the exceedingly lax and abundant connective tissue, which separates the so-called "mucous" layer from the cutaneous layer of the foreskin, and secondarily, to the delicacy of the inner layer, and at the same time the comparative toughness of the outer skin, both of which have to be pierced by the needle in passing the sutures necessary for proper coaptation of the parts.

Whatever method of operating is chosen, it is well to consider separately the treatment required by each of the three several layers of the prepuce—the cutaneous layer, the so-called "mucous" layer, and the intervening layer of loose, connective tissue.

FIRST, pains must be taken to so conduct the incision in the skin of the prepuce, that an abundance of cutaneous tissue shall be left in the neighborhood of the frenum, lest if a scanty amount of skin be left here, the penis on erection may tend to curve downward, as in chordee, making a tense, and therefore tender and vulnerable cicatrix in the neighborhood of the frenum. a portion of the organ particularly prone, even on the normal penis, to ulcerative venereal infections.

SECONDLY, as has been emphasized by Bransford Lewis, of St. Louis, it is necessary to resect very freely the "mucous" layer of the foreskin, and this for three reasons. In the first place, the mechanical conditions are such that if the "mucous" layer is left long enough to come forward over the larger part of the glans, still more if it can reach forward in front of the meatus, the cicatrix which occurs at the junction of skin and "mucous membrane," being subject, like all cicatricial tissue, to contraction, is entirely unopposed in this tendency by the collapsible cuff of preputial tissue, and is apt to form a narrow

ring of scar-tissue in front of the glans, or at least in front of its greatest circumference, which indistensible fibrous ring will be incapable of retraction past the corona glandis; and although in these cases the tip of the glans may be permanently exposed, yet we have a virtual recurrence of the phimosis, often necessitating a second operation. Especially is this so where the phimosis is complicated with adhesions and with preputial concretions.

In the second place, while it is desirable to leave the preputial tissues sufficiently long to roll forward, when the penis is flaccid, to a point slightly in advance of the corona, so as to avoid too tight stretching of the skin when the penis is in full erection, whereby the vulnerability of the tissues is increased if brought into contact with acrid or infectious vaginal secretions,—yet if this desirable laxity of the penile integuments is secured by leaving behind any considerable portion of the “mucous” layer of the prepuce, this unresected “mucous membrane” will resume its old position in contact with the epithelium of the glans. And if adhesions between prepuce and glans were present at the time of operation, these most objectionable accompaniments of a phimosis are apt to re-form, requiring more or less prolonged and troublesome after-treatment to dispose of them.

The third reason for removing very freely the inner layer of the prepuce, in cases where circumcision is required, is that although this layer of the foreskin is not a true mucous membrane, and does in time tend to assume the characteristics of the ordinary integument, yet it always remains more vulnerable than the cutaneous layer, and it is obnoxious to various pathological processes, e.g., *herpes progenitalis*, which are less likely to attack the penis when the cutaneous layer runs nearly, or quite to the coronal sulcus.

For these three reasons, then, an ideally performed circumcision should consist in an almost total resection of the “mucous” layer of the foreskin, and a resection of but a limited amount of the cutaneous layer of the prepuce, taking special pains, as indicated above, to leave an abundance of the cutaneous tissue in the neighborhood of the frenum.

Having considered the point of section desirable, first, for the cutaneous layer, and, secondly, for the “mucous” layer, we must now consider,

THIRDLY, the treatment of the intervening layer of connective

tissue. We may dispose of this subject briefly by saying that with the removal of the foreskin, the function of this loose connective tissue disappears, and any redundancy of it should be freely removed, as it is apt otherwise to form an unsightly bunch behind the corona, which may even prove in some degree a hindrance to copulation. Such a bunch is particularly prone to remain near the frenum, where in cases of elongated and phimotic prepuce this connective tissue is very abundant. Its vascularity is too great to allow it to disappear by atrophy. One further observation in regard to this layer is in order, namely this, that in passing the sutures, it is necessary to avoid catching up any of the connective tissue with the needle and including it in the stitches; the skin and mucous membrane should, on the contrary, be drawn together and united over it. If this precaution is not observed, a little "teat" of connective tissue intervenes between the two cut edges, preventing their exact coaptation and exposing the wound more or less to "cellulitis," with its accompanying swelling and pain, both of which are most successfully obviated by careful and exact union of skin and mucous membrane.

As has been said above, the primary cause of the difficulties of the operation of circumcision lies in the looseness of the intermediate connective tissue layer. More specifically these difficulties are that of securing the division of the cutaneous and of the "mucous" layers along the desired line, and that of neatly coaptating the corresponding portions of the inner and the outer layers.

Various devices, clamps, phimosis rings, tractors, etc., have been used to overcome these difficulties. They all of them fail to secure sufficient resection of the "mucous" layer, while most of them are but indifferently successful as an aid to placing the stitches. If the hold of the apparatus is relaxed, to allow more exact trimming off of the "mucous" layer with scissors, all advantage as an aid in placing the sutures is immediately sacrificed. Furthermore, cutting the "mucous" layer so twice, doubles the opportunities for hemorrhage and, if the operation is performed without general anesthesia, adds unnecessarily to the pain, which is apt to make itself felt in some measure when manipulating the extremely sensitive "mucous" layer even when the cutaneous layer is completely insensitive from cocaine.

A more rational and equally expeditious way of performing

circumcision is to discard all automatic appliances, and to do away with the notion that there is any advantage to be gained in attempting to take off the foreskin by one sweep of the knife or clip of the shears, but to proceed deliberately to resect separately such portions of the three several constituent layers as we deem require removal, independently of how much of one layer or how much of another happens to come within the grasp of a clamp or be tied on to a phimosis ring.

The first mentioned difficulty having thus been obviated by dividing the three layers consecutively instead of attempting to do so at one stroke, the second difficulty, that of properly adjusting the divided parts, is met by the simple plan of stitching together the skin and mucous membrane as fast as they are cut, thus giving them no opportunity to become displaced.

The exact steps by which this is to be accomplished were detailed by the writer in an article contributed to the *Yale Medical Journal* for November, 1899, and what follows below is largely taken from that article.

As was first advised by Ricord, it is a wise though not indispensable preliminary to mark on the prepuce, as it lies at rest, the line where we wish to incise the skin. This can be done with a pen and ink, or with a dermatographic pencil, or, better yet, with the keen edge of a scalpel, or with successive snips of a sharp pair of scissors, cutting just deep enough to score the cuticle at the line, or just ahead of the line, at which the skin layer is to be removed. This having been done, both layers of the prepuce are to be divided with scissors in the median line, along the dorsal aspect of the penis, the cut being continued so far as to divide the skin back to the line which has been marked out, and so as to divide the mucous layer clear back to its origin at the postcoronal sulcus. When the prepuce has been split in this way, the glans should be completely and carefully freed from all adhesions, and all retained smegma carefully wiped away; this part of the operation, indeed, requires careful attention, as it is not difficult to overlook slight adhesions between the mucous membrane and the crest of the corona, especially near the frenum. When the glans has been everywhere completely freed from every vestige of adhesion, a fine catgut stitch should be passed just at the angle of the wound, uniting the middle point of the skin to the mucous membrane, just at its reflection from the sulcus, as illustrated in Fig. 1. The ends of

the suture should be left long, to serve as a means of identifying this first median stitch.

When the prepuce has been split, and this middle stitch has been placed and tied, the circumcision proper should be performed as follows: With scissors, the mucous membrane should be divided on one side, at a distance of a sixteenth to an eighth of an inch from the corona, for about half an inch, more or less, and then a parallel cut, slightly longer, should divide the skin just along the line, or if preferred, and if allowance has been made for it in marking, just behind the line marked on the skin

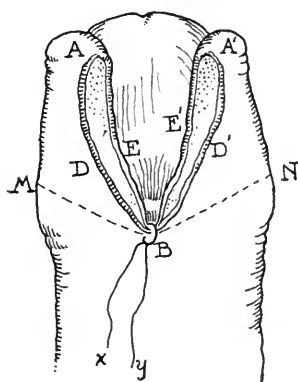


Fig. 1.

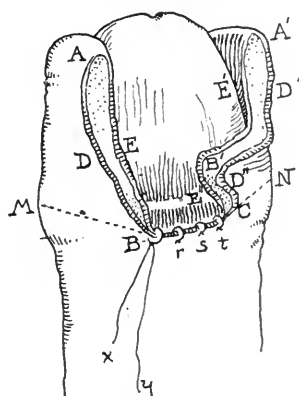


Fig. 2.

Fig. 1.—Showing the dorsal splitting of both layers of the prepuce as far as the sulcus, and the first stitch, that at the apex of the incision.*

Fig. 2.—Showing the circumcision proper, begun by a cut about one-half inch long, dividing the mucous layer close to the corona, and the cutaneous layer along a line parallel to it. The first stitch is in place with its ends left long. The second, third and fourth stitches are tied, and the ends cut short. The operation is ready to be continued by a further cut about one-half inch, the mucous layer to be divided close to the corona, and the cutaneous layer along the line C-N.

before beginning the operation; and a third clip of the scissors should divide the corresponding portion of the loose connective tissue. When the half-inch section of the preputial layers and of the intervening connective tissues has been made, the skin and the mucous membrane should be united to each other along

* LETTERING COMMON TO FIGS. 1 AND 2. A-A'—Anterior margin of the prepuce divided by the dorsal incision and retracted. B—The angle of the primary dorsal incision with the first stitch passed and tied. This stitch is to be passed and tied as soon as the glans has been freed from all vestiges of preputial adhesions, and before the circumcision proper is begun. B'—The angle of the partly resected prepuce, which, before the transverse incision was made, lay at the point B. C—End of the first one-half inch transverse incision, dividing both layers of the foreskin. D, D', D''—Cutaneous layer of the prepuce. E, E', E''—Mucous layer of the prepuce. B-M, B'-N, C-N—Line of transverse incision, which it is well to mark off on the skin before beginning operation. x, y—Ends of the first stitch left long. r, s, t—Second, third and fourth stitches, to be tied and cut short, before the second one-half inch portion of the transverse incision is begun.

the cut just made, by two or three fine interrupted sutures. In passing the sutures, the skin should be caught up first and then the mucous membrane, but the thread should pass over, and not through the connective tissue. When these sutures have been tied, with a square knot rather than with a surgeon's knot, so as to avoid any bulky bunch which could catch on the dressings, they should be cut short and a second portion of the preputial layers should be divided as before (see Fig. 2), and the edges immediately sutured, and so on, until the frenum is nearly reached.

In the neighborhood of the frenum the layer of connective tissue intervening between the skin and the mucous membrane will be found especially abundant, and will require free resection. It should be remembered that as we approach the frenum the line of cutaneous incision should be curved forward toward the meatus, especially if we are working without previous demarcation of the incision. At this point, too, the incision in the "mucous" layer should not hug the vanishing corona too closely, as it is more difficult to introduce the needle in this situation.

When we have carried the circumcision nearly to the frenum, it is best to return to the dorsum to repeat on the opposite side of the penis the division and suturing of the tissues which we have just practiced on the first half. By this means the division of the frenal artery, the only vessel at all likely to give rise to troublesome bleeding, is reserved till the last, when the securing of that vessel and the suturing of the small remaining gap in the junction of the edges of the skin and the mucous membrane, and cutting short the ends of the median stitch will complete the operation.

The stitches, which should be of fine catgut, should be placed sufficiently close together to secure the most exact coaptation of the lips of the wound. With exact coaptation and complete hemostasis the great swelling of the penile integument frequently seen after circumcision is almost entirely done away with, provided that hands, instruments and suture material have been aseptic. The role which small intervening portions of connective tissue between the lips of the wound play in the production of this mild form of cellulitis has been alluded to above.

In operating thus, the surgeon has at every moment under

his eye the tissues he is going to divide, and does not have to estimate, more or less by guess-work, how much of one layer and how much of the other are going to be removed by his incision; the mucous membrane does not have to be cut through twice in order to assure its complete removal; no time is lost in trying to make the cut edge of the skin fit with the cut edge of the mucous membrane, because, inasmuch as they are sutured bit by bit as fast as they are cut, and the median stitch is placed before the circumcision proper is begun, they, in fact, never become displaced. Owing to the fact that the relative position of the skin and the mucous membrane is not disturbed, there is no loss of time in passing any desired number of stitches and no need of any special apparatus, tractor, or clamp, or tube, or constricting cord to hold them in place. If there should be bleeding from any of the minor vessels of the penis, the bleeding point can be identified and secured immediately after being cut, and before the vessel has retracted hopelessly into the exceedingly lax connective tissue, and the hemorrhage can be arrested promptly and permanently without the formation of an annoying hematoma. The general procedure is in accord with the rules of sound surgery, allowing free exercise of judgment for every step taken, instead of the somewhat haphazard way of cutting off everything at one sweep of the knife, and then proceeding to repair damages as well as possible. The only indispensable requirements for the operation are a pair of scissors and a needle and thread, though the use of a needle-holder and a couple of artery clips and a mouse-toothed forceps will be of help in finishing the operation neatly and expeditiously. This operation further allows, as no other does, the removal of the useless and superfluous connective tissue, facilitating the healing, giving rise to less edema, and reducing materially the time it otherwise takes for the penis to regain its normal proportions.

After circumcision the dressing used should be extremely simple; its only object should be to prevent the wound from becoming contaminated. My own custom is to pass around the waist a string, or a tape, or a belt made of a bit of roller bandage, and upon this to hang by the middle a double strip of sterilized gauze, about twelve to sixteen inches long, consisting of five or six thicknesses of the material. In the posterior fold of the strip is cut a slit just large enough to receive the penis;

through this slit the penis is passed and the anterior fold is allowed to fall forward over the penis like an apron. (See Fig. 3.) By this means the penis and the operation wound are kept from contact with the scrotum, on the one hand, and from contact with the clothes, on the other hand. The posterior fold can be fastened in place with perineal tapes if desired, and to it the anterior fold may be pinned at the lower corners, if it be thought necessary. In infants I generally make the slit in the posterior fold large enough to pass through it the whole scrotum; when the anterior fold is dropped down over the penis like an apron, the diapers can be adjusted as usual, and still retain the sterile gauze in contact with the wound. Before finishing the dressing I always express from a collapsible tube a generous allowance of sterile vaseline upon the glans penis, upon the line of suture, and upon both the anterior and the posterior fold of the dressing.

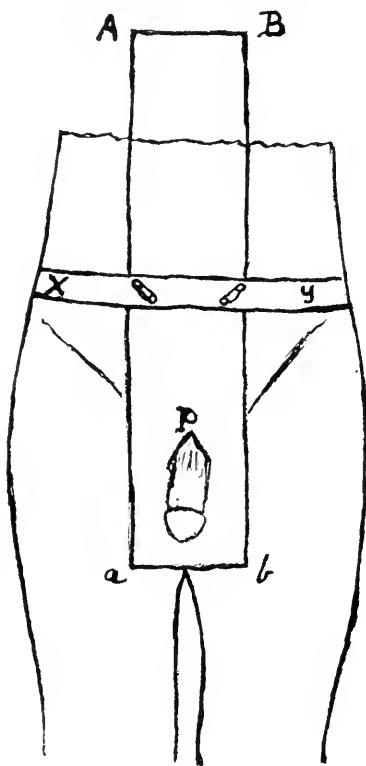


Fig. 3.—Dressing for use after circumcision. A-B-a-b, a strip of absorbent gauze twelve to sixteen inches long and one yard wide, folded in five or six thicknesses. x-y, a belt of tape or bandage about the waist; to this belt the centre of the strip of gauze is pinned. The lower half of the gauze strip is perforated, at P, through all its thicknesses to give passage to the penis (in infants the perforation should give passage to the scrotum also). The upper half of the gauze strip is to be folded down over the penis and the points A-a and B-b may be pinned together.

any bandaging or handling of the penis, can be replaced by the mother of an infant (if carefully instructed not to finger either the penis or the gauze, and not to smear on the

vaseline with the finger, but to express it over the penis, the wound and the gauze from the collapsible tube), with a comparatively small chance of infection, a desideratum particularly important in operations on infants, whose diapers have to be frequently changed, a performance fatal to the asepticity of any dressing involving a bandage about the penis.

294 ELM STREET.

Scarlatina in India.—It has been claimed that scarlet fever does not occur among the natives in India. A special interest therefore attaches to an article in the *Indian Medical Gazette* by Drs. Cook and Caddy, in which it seems to have been demonstrated that the disease does exist independently of outside or foreign infection. Bacteriological experiments tend to confirm this opinion.—*Medical Record.* Vol. lvi., No. 20.

An Epidemic of Diphtheria which Probably Originated from Diphtheria in Birds.—The Hygienic Council of the Department of Gironde (*Jour. de Med. de Bordeaux*, June 25, 1899; *Vratch*, Vol. xx., No. 28) investigated a recent epidemic of diphtheria in the town Audernos. Twenty-one took sick and three died. The attending physician, Dr. Peyneau, traced it to an epidemic of diphtheria which broke out among the chickens of the town. In every house in which diphtheria developed the chickens were also affected. In the case of the latter, the disease was characterized by a pseudomembrane in the beak, emaciation, diarrhea and in some paralysis. In 1879 Nicati claimed that this disease of chickens is identical with diphtheria in man, and lately Ferre (of Bordeaux) not only substantiated this claim but also proved that antitoxin both as a curative and prophylactic measure, has a very excellent effect. On the ground of these facts the Council demands that in all cases of diphtheria in birds the coops should be thoroughly cleaned and disinfected with a solution of sulphate of iron (50 gms. to litre of water). The diseased chickens should be killed and burned.—*International Medical Magazine.*

Occasional Periscope of Teratology.

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Mouchet, A.: Congenital Scoliosis. (*Bull. et Mém. Soc. Anat. de Paris.* 6 S., Vol. i., p. 972. Nov., 1899.)

Mouchet has met with a new kind of congenital scoliosis in three cases, one of which was a living child and the other two dead fetuses. One of the fetuses was a female, dead-born, with a number of anomalies, including exencephaly, double talipes equino-varus, congenital amputations of the fingers of the left hand, malformation of the eyes, and right-sided macrostoma. The spinal deformity consisted in the presence of a wedge of bone and cartilage lying between the first and second lumbar vertebral bodies, causing the scoliosis. This osteo-cartilaginous wedge had its base turned towards the right; its apex, sharp and entirely cartilaginous, looked towards the left. It did not separate the first and second lumbar vertebræ completely; at the left these were separated only by the intervertebral disc, while at the right the intervertebral disc seemed to bifurcate, part of it passing above the wedge, between it and the first lumbar vertebral body, and part of it below the wedge, between it and the second vertebra. On the right side the wedge was furnished with a cartilaginous projection (articular and transverse processes), and posteriorly had an osseous lamina ending in a spinous process united with the spines above and below by ligaments. On the left side the supernumerary vertebra had no neural arch. So the case was one of a supplementary vertebra developed only in its right half. Mouchet refers to a second case reported by himself in 1898 (*Gaz. hebdom. de méd. et chir.*, Mai, 1898) in which the supplementary half vertebra between the first and second lumbar vertebral bodies was present on the left side: it was discovered by the radiograph in a living female child; and in this instance there were no other anomalies. He had recently seen a third case. He was, therefore, of opinion that these cases prove the existence of a variety of congenital scoliosis due to the presence of a supplementary vertebra, developed only on one or the other side, between the first and second lumbar vertebræ. He also concluded that the extra vertebra might exist as the sole anomaly.

Pinkus, Felix: Congenital Hypotrichosis. (*Arch. f. Dermat. u. Syph.* Bd. l., p 347. 1899.)

Both hypotrichosis and hypertrichosis of congenital origin are now regarded as teratological in nature, and the example of the former, which Pinkus relates in an interesting fashion, bears out this conclusion. The patient, a boy, eight years old when seen, was the son of an almost completely bald man, who had been so from the age of a few months, and of a normally haired mother; he had a sister, twelve years old, with a strong development of body hair, but without the upper lateral incisor tooth on each side. He had suffered from right-sided buphthalmus since birth; with the exception of this and the anomaly of the hair, he was healthy bodily and mentally. When born he showed a head covered with thick hair ("wie eine kleine Maus"), especially over the posterior part; at the age of a few months a crust formed over the anterior part of the scalp, and when it fell off the hair came with it; over the rest of the head the hair disappeared without any previous crust formation. At nine months he was quite bald. Now at the age of eight years the body was almost hairless; on the face was a normal lanugo on the nose, upper and lower lips, and to a less extent on the forehead and cheeks; the neck was quite hairless, but there were some hairs on the external ears. On the brow and cheeks were some downy hairs longer than usual, and also some brown hairs too long and too dark for the age of the patient; these were situated between the ordinary lanugo hairs of these regions. The eyelashes were normal; the eyebrows consisted of a few strong hairs and some lanugo. With regard to the region of the head, large, quite bald patches alternated with relatively hairy patches, but the general impression was one of baldness; the greatest number of hairs were on the vertex. The hair-streams were normal in direction, and most of the hairs were flax-like, but some were thick with long intracutaneous parts. The skin was white and smooth, and showed no signs of dryness or of thickening. The nails were thin and brittle at the ends. The dentition was in process of change, but it was clear that (as in the patient's sister) the two upper lateral incisors were absent, as was also the left lower canine. Pinkus believes that in this case there was present at birth an unusually well-marked lanugo over the head and possibly also over the body; this was shed soon afterwards, and then the anomaly revealed

itself, consisting in a defect in the development of the after-growth of hair. There was a defect in the anlage of the permanent coating of hair; it was a malformation. The hypotrichosis in this case affected the persistent hair; fetal eutrichosis was followed by a hypotrichosis in extrauterine life. This form of hypotrichosis may be contrasted with hypertrichosis or trichostasis primitiva: in the former, the shedding of the hair at birth and the change in its character take place as in normal circumstances, the anomaly develops afterwards; in the latter, the shedding of the first hair and also the change in its characters are both absent.

Castro, M. : Notomelic Monstrosity. (*Revista de la sociedad medica Argentina.* Vol. vii., p. 136. 1899.)

Notomely is one of the rarest forms of monstrosity, and the instance of it recorded by Castro is specially interesting. It was that of a girl infant born in Buenos Ayres on the 24th of April, 1899; she was two days old when brought to the Surgical Department of the Children's Hospital. Attached to the middle line of her back and about the level of the third and fourth dorsal vertebræ were two limbs resembling arms consisting of two segments each, an arm and a hand. Below these projections was a spina bifida sac about the size of the child's head. There was also a cephalhematoma on the right parietal bone. The parents were free from syphilis, and this was their first infant. Four days later the spina bifida sac was tapped, and about 200 grammes of clear yellow fluid drawn off, which on analysis showed about 15 per cent. of albumin; it was then found that there was a space of from 4 to 5 cms. between the laminæ of the vertebræ at this point. The fluid had occupied the middle part of the swelling, and at the sides were two lipoma-like masses; the evacuation of the fluid did not affect the respiration or circulation. At the request of the parents an attempt was made two days later to remove the parasitic fetus from the infant's back. It was then found that from the spinal canal nerves and blood-vessels passed to the lipoma-like masses and to the limbs. The operation was completed, but on the seventh day afterwards convulsions set in and death occurred. The necropsy showed purulent spinal meningitis and pulmonary, hepatic and renal congestion. The left parasitic limb contained a bone corresponding to the humerus and a cubical bone; these

were followed by two other short bones and by two digits. The right limb had a single curved long bone, four rudimentary metacarpals and the phalanges of four digits. Two of the fingers exhibited syndactyly.

Wolff, B. : Triplets, One of which was an Acardiac. (*Arch. f. Gynæk.* Bd. lix., p. 294. 1899.)

The birth of triplets or quadruplets, one or two of which were acardiacs, has only been reported (according to Wolff) thirteen times; the present case is, therefore, the thirteenth. The mother was thirty-one years of age and a primipara; the father was twenty-four, and his sister had once given birth to twins; there was no further family history of twinning. The first born child was a living boy who came by the head without help; the second fetus, a female, lay transversely, had to be turned, and did not breathe; both measured 41 cms. in length. Then followed, presenting by the feet, an acephalic fetus. There was post-partum hemorrhage. The living infant died when a day old. There were two separate placentas, one belonging to the female infant and the other to the male and to the monster. The latter had one chorion and two amnions. The umbilical cord of the acardiac fetus had one vein and one artery which anastomosed with the vessels of the male infant in the placenta. The monstrosity was a typical acephalus acardius.

24 MELVILLE STREET.

Dermatomyositis.—Dr. Oppenheim in the *Berlin klin. Wochens.*, describes this affection as observed in a child nine years of age. There were pains in groups of muscles, difficulty of movement, redness and swelling in certain regions, pain about the pharynx and mouth, with difficulty in swallowing. There was also a certain amount of atrophy and paralysis in some muscles, which were hard and contracted. Some skin areas were red and appeared infiltrated. This rare affection may be confounded with muscular dystrophy or sub-acute rheumatism. The lesion is an infiltration of muscular tissue by small cells, enlargement of the internal perimysium, and partial destruction of muscular fibres.—*Medical Record.* Vol. lvi., No. 20.

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HYPERTROPHIC PYLORIC STENOSIS.

Congenital hypertrophic stenosis of the pylorus is an obscure condition that has recently been given added interest by the publication of a number of cases that have been carefully recorded and studied. It is questionable whether the designation congenital stenosis should be applied to all cases, as there is a possibility that symptoms observed in some instances may be, as remarked by Pfaundler, more apparent than real, and due to spasm of the pyloric sphincter.

One difficulty in determining the pathological connection of true stenosis with the contractions of the pylorus due to simple spasm is because so few measurements of the normal pylorus are published.

Still, who measured the pylorus in eight infants, learned that there is considerable variation in the thickness of the wall of the normal pylorus. In some cases there is a thickening of the muscular coat approximating the hypertrophy of the pathologic cases. Clinically, palpation of the pylorus would determine the presence of hypertrophy in cases where it is not known to exist. In almost all of the true cases the stenosis is dependent upon the hypertrophy, and is not a cause of it.

From the fact that most of these cases are observed shortly after birth, too soon, in fact, to be due to actual changes in the muscular coat of the pylorus, it would seem that the disturbance is explained by an influence that is, in part at least, prenatal in its origin.

Thomson believes that there is a spasmodic incoordinate action of the pylorus that leads to hypertrophy. This theory is one that will bear further investigation because there can be no doubt that cases of pyloric hypertrophic stenosis recover. It would seem possible to aid in an elucidation of the elements entering into the symptomatology of hypertrophic stenosis by palpation of the pylorus during the first weeks of extrauterine life. A tumor once detected could be mapped out and its association with vomiting could be recorded.

As the subject now stands we must acknowledge that many of the clinical examinations have been superficial and deductions made from *post-mortem* examinations will need revision when cases are studied more intelligently from the appearance of the first symptoms.

Bibliography.

The International Medical Annual and Practitioners' Index. A Work of Reference for Medical Practitioners. (By Over Forty Contributors.) 1900. Eighteenth year. New York and Chicago: E. B. Treat & Co. Illustrated. Pp. xii., 748. Price, \$3.

This *Annual* is so well-known that this edition does not require more than a simple mention. The first part of the volume is devoted to therapeutics and is written by Dr. Murrell. Pharmacology is still under a cloud and it will be some time before there is a revival of this industry. At present it has no particular place in the medical curriculum.

Organotherapy seems to hold its own and to the familiar preparations of the thyroid gland are added many others that have a questionable value.

The subjects under pediatrics are edited by Dr. Chapin and include a number of articles of interest and importance. In the treatment of pertussis antipyrin is regarded as the most efficacious of the drugs now in use.

The treatment of summer diarrhea in infancy does not show anything especially new. Preparations of bismuth are esteemed as the best medicinal agents.

Dr. Fenn writes of diphtheria and states, "The general opinion of antitoxin treatment, as expressed in print, is overwhelmingly in favor of this mode of treatment." There has been a gradual change in the size of the dosage and, at present, 6,000 normal units are not regarded as too much. The serum treatment has not been found to lessen the occurrence of post-diphtheritic paralysis. References to periodicals are given at the end of every article and the book is supplied with a full index so that it is possible to keep informed of the latest advances in medical science without any waste of time.

The book is one that should be used by the general practitioner and also by the specialist because of the up-to-date notes on all subjects of interest.

A Pocket Medical Dictionary Giving the Pronunciation and Definition of the Principal Words Used in Medicine and the Collateral Sciences. Including Very Complete Tables of Clinical Eponymic Terms, of the Arteries, Muscles, Nerves, Bacteria, Bacilli, Micrococci, Spirilla, and Thermometer Scales, and a Dose List of Drugs and their Preparations, in both the English and Metric Systems of Weights and Measures. By **George M. Gould, A.M., M.D.** Fourth Edition. Revised and enlarged, 30,000 words. Philadelphia: P. Blakiston's Son & Co. 1900. Pp. viii., 837. Price, \$1.

The popularity of this dictionary is shown by the issue of the new edition. The circulation of the dictionaries, edited by Dr. Gould, is over one hundred thousand, and this volume shows why such success is possible. It gives in a brief form definitions that are accurate and descriptive. Diphthongs and terminal letters are omitted, and while there is no attempt to follow the phonetic system everything is done to strip words of unnecessary letters. The table of clinical eponymic terms is complete and helpful. The book is compact, well printed and bound.

Ulcerative Membranous Tonsillitis.—H. de Stoecklin (*Centralbl. für Bakteriöl.* Vol. xxiv., No. 17) records a case having all the characters of diphtheria without presenting Loeffler's bacillus, but instead spirochetes and bacilli larger than the diphtheria organisms, broad in the centre and tapering toward the extremities, and staining well with methyl violet. These organisms evidently correspond to those described by Bernheim, who considers this form of tonsillitis a pathological entity distinct from diphtheria. If Loeffler's bacillus be present, Bernheim considers that the disease has been grafted upon a true diphtheria. Stoecklin, in conclusion, puts two questions which further clinical and pathological investigation must answer: (1) Is the co-existence of spirochetes and fusiform bacilli constant in and pathognomonic of ulcerative membranous tonsillitis, or are there mixed cases in which the virulent organism of diphtheria is present? (2) If so, what is the frequency of such mixed cases, and how does the presence of fusiform bacilli and spirochetes influence the diphtherial infection, therapeutic measures, and, above all, the prognosis?—*British Medical Journal.*

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, March 8, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

HYSTERIA WITH LARYNGEAL MANIFESTATIONS.

DR. CHARLES HERMANN presented a boy of eleven years who had a hysterical affection of the larynx characterized by frequent spasmodic contractions and a loud, shrill, barking sound. These attacks do not occur during sleep, and they occur less frequently when the boy is in public. The diagnosis had been made largely on the presence of certain stigmata of hysteria. Dr. Hermann said that Charcot had described attacks of vomiting occurring in hysterical subjects, and in which the vomitus was peculiar in that it contained a quantity of urea, while there was less than the normal quantity of this ingredient in the urine. He had not yet tested the vomited matter in the present case for urea, but he had noted a diminution of the urea in the urine. The boy's general nutrition was evidently below the standard, and treatment directed to improving this would probably have a beneficial effect on the hysteria. Sedatives were of little value. The boy could be readily hypnotized.

THE CHEMICAL COMPOSITION OF MILK AND CREAM.

PROFESSOR JOHN ADRIANCE gave an address on this subject. He said that while it was generally accepted as a fact that cow's milk contains 4 per cent. of proteid, his own analyses, as well as those made abroad and at our own government experimental station, showed that the average was not greater than 3.3 per cent. The better the care and nourishment which the cows receive, the higher will be this percentage. Another fact of great practical importance in connection with the modification of milk for infant feeding was that the solids, not the fat, remain nearly constant, and that as the fat increases the percentages of the other ingredients diminish materially. The composition of milk was fairly expressed as follows: Fat, 4.28 per cent.; sugar, 4.71 per cent.; proteids, 3.59 per cent.; other solids, .77 per

cent. Now, when the percentage of fat was 5, there would be sugar, 4.69 per cent., and proteids, 3.63 per cent.; with 10 per cent. of fat, there would be 4.46 per cent. sugar and 3.43 per cent. proteids. The error arising from the common assumption that milk contains 4 per cent. of proteids would be very slight where the dilution of the milk or cream did not exceed 1 per cent.; but, on the other hand, if the dilution amounted to 2 per cent., the result would be nearly .25 per cent. lower than estimated, a matter of great importance when one recalled what a difference in digestion might result from a variation of only .2 per cent. in the proteids.

DR. JOSEPH E. WINTERS expressed his pleasure at finding the researches of Professor Adriance and others so fully corroborate his own clinical experience and his suspicions founded on that experience. He had long been of the opinion that there is less proteid in the upper than in the lower part of milk that has been allowed to stand for some hours, and the amount of this difference would depend upon the quantity of milk removed, the length of time the milk had been standing, and the temperature at which it had been kept. Thus, if the upper two ounces were taken from one quart of milk that had stood for sixteen hours, there would be seven and a half times as much fat as proteid; whereas if four ounces were removed from the upper layer of a quart of milk that had stood only eight hours, there would be only three and a third times more fat than proteid. He always directed his families to purchase bottled milk, and not cream, for infant feeding, and to keep the milk in the refrigerator for a definite time and at a certain temperature before removing a definite quantity from the upper portion. He made the assertion that milk which had been kept for sixteen hours in a refrigerator was just as fresh and fit for use for infant feeding as when it had been recently delivered. He believed that many of the failures with infant feeding arose from using too small a percentage of proteids. The young of animals fed on milk containing a large percentage of proteid soon become strong and independent of their mother; while human offspring, being fed on milk containing the lowest proportion of proteid, are exceedingly slow to start out on an independent existence. The development of the muscular system was particularly affected by the proportion of proteid contained in the food.

DR. L. EMMETT HOLT also believed that much of the malnu-

trition so commonly seen by physicians among infants could be traced to the use of food containing too little proteid. Another most potent cause was the unwise use at first of a food containing too much proteid, with the result that the digestion had become seriously impaired, and it had been impossible to make use subsequently of a sufficiently high percentage of proteid. It was a common experience for him to find infants fed on milk containing as much as 5 or 6 per cent. of fat, and always with bad results. The most common fault, perhaps, was to commence with too large a percentage of proteid, and then, having caused digestive disturbance thereby, continuing a low percentage throughout the first year. His own method was to give .25 per cent. or .5 per cent. proteid for the first few days, and then rapidly increase the percentage, so that at the end of six weeks the child might be taking and perfectly digesting 1.5 per cent. proteid. He often gave an infant 2 or 3 per cent. of proteid at the end of the first two or three months. The mother should be warned, however, that a slight and temporary indigestion might follow the change to higher percentages of proteid, especially if these changes were made rather rapidly.

DR. VANDERPOEL ADRIANCE endorsed what had been already said about the percentage of proteid in the food being the keynote to the whole subject of infant feeding. The fat and the carbohydrate, he said, represented only so much fuel: the proteid was the vital element. The slow dentition, anemia and loss of weight so frequently observed in the later months of lactation were attributable to a diminution in the percentage of proteid. As the proteids and the ash diminish together, the osseous system did not receive its proper pabulum, and the result was rickets.

DR. CHARLES HERMANN alluded to some experiments that he had made with the centrifuge and the microscope to ascertain the truth or falsity of the assertion that poor results from the use of laboratory milk were owing to the breaking up of the natural emulsion by the artificial separation of the cream. His experiments had failed to show any difference in the fineness of the emulsion.

DR. WILLIAM L. STOWELL commented on the high food value of skimmed milk, and the injustice done the poor by our health authorities prohibiting its sale in this city. Skimmed milk is rich in proteid, and contains much heat-producing and bone-forming material.

DR. ROWLAND G. FREEMAN took issue with Dr. Winters on the statement that milk that had been kept in a refrigerator for sixteen hours was perfectly good for infant feeding. It might be if the milk were very fresh when first put there, and if the temperature of the refrigerator were kept quite low; but it should not be forgotten that a good deal of the milk reaching this city is forty-eight years old by the time it reaches the consumer. Moreover, he had determined, by actual tests, that the average refrigerator temperature was 62.5° F., or 2.5 higher than the temperature at which the Board of Health required the milk should be kept while being transported.

DR. WINTERS replied that he too had made personal observations on this point, and knew that the temperature of the ice compartment was usually 40° F. or lower, and that of the other part of the ice-box was between 50° and 60° F.

DR. SOUTHWORTH said that a very common fallacy was the belief that milk is made up only of fat, sugar and proteid, and that cream and fat are synonymous terms. In practice, it was convenient to keep in mind the composition of milk in round numbers. The error arising from diluting cream on the basis of 4 per cent. proteid was not as great as might appear, for the dilutions were usually made within those limits in which this error is very slight.

An Early Sign of Hereditary Syphilis in Infancy.—Carra-
lero, of Madrid (*Internat. Centralblatt fur Laryngol*, etc., Vol. xv.,
No. 8), has written concerning the coryza of infants at the breast
as an early symptom of hereditary syphilis, and the differen-
tiation of this from other forms of rhinitis in infancy. The writer
regards the coryza as one of the most constant symptoms—in
the majority of cases the first to appear, and in some cases the
only early manifestation of hereditary syphilis. The diagnosis is
difficult if no other symptoms are present, however; with any
obstinate purulent rhinitis this cause must be considered and
general specific treatment inaugurated.—*Richmond Journal of
Practice.* Vol. xiii., No. 10

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, February 13, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. AUGUSTUS A. ESHNER exhibited

A CASE OF MITRAL REGURGITATION AND PULMONARY OBSTRUCTION.

A girl eight years old, who gave a previous history of measles and of sore throat. She presented displacement of the apex beat of the heart to the left, an increased area of cardiac percussion-dulness, and a loud systolic murmur at the apex, transmitted to the axilla, and a rough systolic murmur and an accentuated second sound at the left base.

DR. J. P. CROZER GRIFFITH reported a series of cases and exhibited some of the patients.

I.—CONGENITAL HEART DISEASE WITH GREAT CYANOSIS AND CLUBBING OF THE FINGERS.

He remarked: The family history is negative. The boy is now seven years old, although he looks much younger. The parents state that he has been well until very recently, but this is manifestly incorrect. Examination on January 5th disclosed the precordial area not bulging, the apex beat scarcely perceptible in the fourth interspace, the cardiac dulness nearly normal, except for very slight enlargement to the left. No thrill could be detected. Without reading all the details of the case-history I may say that there was a loud systolic murmur, which appeared to be loudest over the midsternum, although it was nearly as loud at the pulmonary cartilage. There was also a murmur at the apex, and a faint one at the aortic cartilage. The murmur was transmitted under both clavicles and heard also to some extent in the back. The pulmonary second sound was decidedly accentuated.

As you can see, the appearance of the boy is very characteristic. The cyanosis is remarkable. The lips and tongue are blue and often intensely so, and at times he has large purplish areas almost like a bruise on his cheeks. The hands and feet are constantly blue and cold, and the clubbing of the fingers and toes is excessive. I do not think I have ever seen greater clubbing. The child does not seem very bright, but it is difficult to determine this on account of his inability to speak English. The

condition of the child and the character of his murmurs indicate that he must have congenital heart disease. The interesting point is, what form of congenital heart disease is it? I believe the diagnosis can be reached with approximate certainty, although there is always an element of doubt in these cases. As we know very well the experience of nearly all clinicians and pathologists shows that marked cyanosis is dependent oftener upon pulmonary stenosis than upon any other cardiac condition. If we leave out of account transposition of the arterial trunks and other curious anomalies about which we can reach no conclusion whatever, and the presence of which we have no reason to suspect in this child. If we have to do in this case with valvular lesions and anomalous openings only, it seems to me that the child clearly has pulmonary stenosis. The combination of cyanosis with loud systolic murmur at the pulmonary cartilage constitutes the ground for this belief.

We have still to explain the very loud systolic murmur over the midsternum. This is just in the position in which one would expect to discover the murmur of a perforate septum ventriculorum. The great cyanosis makes us suspect that there is a very decided degree of stenosis of the pulmonary artery. If this is so the blood must pass from the right to the left side of the heart either through a patulous foramen ovale or through a perforation in the ventricular septum. In the former case we should probably have no murmur produced, although there are exceptions to this rule. This patulous foramen may well be present here. We cannot tell. In any case the loud midsternum murmur indicates that we almost certainly have a perforation in the septum.

Finally, if we adopt the belief that the pulmonary stenosis is great in this case, we have to discover some path by which the blood can easily reach the lungs. This is oftenest done by means of a patulous ductus arteriosus. Have we any proof of the existence of such a condition here, as deduced from the physical signs? I think so. It is believed by most clinicians—although not by all—and seems certainly reasonable, that a pulmonary stenosis of high grade must be attended by an enfeeblement of the pulmonary second sound, since so little blood enters the pulmonary artery. Yet this boy has a decided accentuation of his second sound. The only way in which this can well be accounted for is by assuming that the blood under the high

pressure of the aorta enters the pulmonary artery through the ductus arteriosus and raises the pressure there to an unusual extent. As a necessary result the pulmonary leaflets close with an unusually loud snap.

I think, then, that the natural diagnosis in this case is, pulmonary stenosis, perforate septum ventriculorum, patulous ductus arteriosus.

II.—V.—CASES OF SPASTIC DIPLEGIA WITH CHOREIFORM MOVEMENTS.

I show you a patient with the following history: The father and mother are living; two brothers and two sisters are living and well. This child was born after a hard labor, and is now four years old. When she was six months old the parents first noticed a peculiar movement of the head and arm. She was brought to the Children's Hospital last November.

Your inspection of the child shows you a condition which speaks for itself. You will notice the nearly constant ataxic or choreiform movements—or a movement half way between the two—of the arms and the head, with a tendency to grimaces of the face. She can grasp one's finger, although with some difficulty and after several efforts. She cannot talk at all, and her intelligence seems decidedly deficient. The knee jerks are slightly increased. There seems to be no actual loss of power. The muscles are very fairly developed. There is great rigidity of much of the body.

She is an example of that class of cases which is puzzling unless one is on the watch—the cases of spastic diplegia with choreiform movements. The condition is interesting chiefly because it simulates other affections and leads to errors in diagnosis. Indeed, a diagnosis of Friedreich's ataxia had once been made in this case. Something happened to the brain of this child, perhaps at birth, perhaps before it, although nothing was noticed by the parents until the baby was six months old. This is the usual history of cases of this kind. What the actual cerebral condition of this child is no one can tell. There has probably originally been a meningeal hemorrhage.

III.—The next case of this condition which I had intended to exhibit is too ill to be brought here to-night. It is that of a little boy with a history to a considerable degree similar to the one reported. The child is said to be a year and a half old, but in appearance it is not much more than infantile. There is a

peculiar tendency to regular, rapidly repeated, jerking movements of the jaw. If one places the finger over the articulation it is felt that the jaw is being thrown partially out of place and back again. Combined with this movement there are irregular, slow movements of the fingers, and apparently purposeless incoordinated movements of the arms. There is slight stiffness of the neck, and an irregular intermittent arching of the back. There does not appear to be any actual paralysis. The child is distinctly an idiot. The face and head have the peculiar appearance of the Mongolian type. The tongue is constantly being protruded and the lips pouted. We certainly have to do here with a spastic, choreiform condition resembling the last. The mental state, however, is vastly worse.

IV.—I have now under my care another child suffering from a similar disorder of motion, but with the mind, I hope, unclouded, although this is not quite certain. When I first saw it at the age of seventeen months it was enormously ataxic. It could not walk or stand, or even creep or turn itself in bed, although there was no loss of power in its irregular movements. It could scarcely grasp an object put into its hands. There was no increase of knee jerk. When lying on its back there was no adductor spasm of the legs, although when held upright with its feet touching the bed there seemed a degree of cross-legged progression. All the child's movements, however, were rather ataxic than spastic. The incoordination was nearly absolute. It has now for seven months had daily massage and Swedish movements, and the improvement has been decided. It has learned to walk to some extent with a baby-jumper. It can stand when steadied slightly, and can grasp objects very much better than formerly. It has learned to say a few words. I am inclined to believe in this case that the inability to talk better is a motor trouble, for the baby shows every evidence of understanding what is said, and of being very fairly if not entirely bright.

V.—In this connection I may refer to the case of a woman who has had the disease from infancy and who has been an inmate of the Philadelphia Home for Incurables for fully twenty years. Apparently, so far as can be learned, she is mentally sound, but she has the most violent and uncontrollable contortions of the whole body, particularly when addressed or excited in any way. She cannot speak a word, but by curious violent ataxic movements of the arms she will indicate what she wants

and what she feels. For instance, after excessive waving of her arms she can finally get her hand to her abdomen or chest, accompanying this by peculiar grunts to indicate that she has a pain there. It is also possible to discover when she has sensations of pleasure. Other inmates of the Home, who see her constantly, are convinced that her mind is clear, and I believe they are right.

VI.—STENOSIS OF THE LARYNX IN TYPHOID FEVER.

The last case I have to exhibit is a patient convalescent from stenosis of the larynx in typhoid fever. The child, a boy of nine years, was brought to the Children's Hospital November 16th, at the end of the first week of fever. The disease ran an ordinary course until about the middle of December, when the temperature rose considerably and remained so without discoverable cause. Towards the end of the month there was suppuration of the middle ear, a profuse discharge from the nose, and increasing hoarseness. The case was supposed to be one of diphtheria developing as a sequel. Laryngeal stenosis became so great that intubation was constantly impending. There was almost complete deafness. Repeated cultures failed to show the presence of Klebs-Löffler bacilli. The child was extremely weak and ill, but gradually improved and the stenosis slowly lessened. Cultures still showed no germs of diphtheria. An attempt at a laryngoscopic examination was made by Dr. W. J. Freeman during the height of the attack, but was unsuccessful, owing to the serious condition of the child. A second examination was made on January 15th, while stenosis was still present, but lessening. This showed edema on both arytenoids and swelling of the left ventricular band and of the right vocal cord.

I believe we have an instance here of laryngeal stenosis due to typhoid fever. Whether or not there was anything more than edema at first cannot be known. These cases of stenosis in typhoid fever occur from time to time, and we find a considerable number recorded in medical literature. Yet in the individual experience of most physicians they are certainly rare.

DR. F. A. PACKARD.—A young colored boy came under my care at the time of the development of the laryngeal symptoms. The boy first began to be hoarse. The larynx was white, with a mucopurulent discharge from the nose. In spite

of the fact the cultures were negative, the case was sent to the tracheotomy room because the membrane was so suspicious of diphtheria that it was thought the case ought to be isolated. My impression is, that it was either a pericondritis of the larynx or possibly a simple typhoid ulceration of the larynx. That, of course, would not explain the rhinitis. The presence of the rhinitis in addition to the laryngitis made me feel, in spite of the negative cultures, that the case ought to be isolated.

DR. JOPSON.—I should like to mention in connection with this case one which I saw with Dr. Griffith two years ago. A colored infant a year and a half old came into the Children's Hospital in April of 1898 for what was diagnosed typhoid fever. The temperature ranged from 101° to 102° for two weeks. Two examinations of the blood for the Widal reaction were positive. The temperature declined gradually, reaching normal, when the child developed sudden severe laryngeal obstruction and the fever returned. I intubated the child, with immediate relief. Cultures taken from the throat were negative. The child died the following day with symptoms of central respiratory failure. An autopsy was not made for several days, but when permission was given an examination of the larynx was absolutely negative. The obstruction had probably been due to edema, as there were no signs of ulceration, pseudomembrane, or infiltration. The pathological findings in the intestine at that time were not in accord with the diagnosis of typhoid fever. Whether it was a case of typhoid fever with absence of ulceration I cannot say. It is the only case in which I have seen laryngeal obstruction dependent upon typhoid fever or any similar condition.

DR. L. J. HAMMOND.—In regard to the cerebral cases reported I should like to emphasize the fact that trifling injuries in children may later on give rise to symptoms of cerebral character. It is therefore important if we are to expect any treatment to be beneficial after the reception of an injury of this kind to explore, especially if acute symptoms are followed after a few days or even weeks by great irritability, hebetude anorexia, change in pulse or temperature, and especially when the motor areas are involved, this alone can furnish us with a diagnostic guide. Upon trephining it will frequently be found that adhesions bind the membrane to the brain or to the bone. The exudate which follows upon these trifling blows may remain latent for a long period and eventually give rise to conditions which have been

spoken of this evening. Early trephining for minor injuries should certainly be instituted when a period of latency after either injury or disease of the ears, nose or eyes is followed by brain symptoms.

DR. G. G. DAVIS exhibited

A CASE OF DOUBLE CONGENITAL LUXATION OF THE HIPS; ONE REPLACED BY MANIPULATION AND THE OTHER BY OPERATION.

The patient shown was a little over five years of age. She started to walk when nine months old. It was noticed that her gait was unnatural, and as she grew older her back became hollow and her buttocks prominent. At the age of three and a half years, or after she had been walking for two years and nine months, she came under Dr. Davis's care at the Orthopedic Hospital. She was then found to possess the marked waddling gait of this affection. Lordosis was quite marked, the hollow in the back being pronounced. Both trochanters were well above Nelaton's line. In standing she did not hold herself perfectly erect but slightly flexed both the hips and the knees. Ether was administered and tenotomy of the adductors of both thighs performed. Then by manipulation both femurs were restored to their sockets. The luxations being both dorsal ones the limbs were put up in plaster of Paris in an abducted and outwardly rotated position. They were so kept for six weeks and on examination the right hip was found still in position while the left was again out. The right leg showing a tendency to inward rotation a silicate of soda dressing with an iron strip was applied to keep it in proper position. Extension was applied to the left hip. The patient then had an attack of measles, and about six months after the right hip had been replaced the left was again put in place and an incision made down to the capsule and it was gathered together and sewed with three chromicised catgut sutures. The wound was packed with gauze. It was thought that perhaps enough contraction might be produced in the capsule to hold the bone in place. On removal of the plaster cast six weeks later the hip was found to be again out of place, so two months afterwards the joint was opened and a fairly well developed femoral head was found. The capsule was stretched and the acetabulum was nothing more than a flat surface about the size of a thumb nail. By means of a gouge and roseburr (for a description of which see

Trans. Amer. Orthopedic Assoc., 1899) a new acetabulum was formed and the head of the femur placed therein. About two months after this operation a belt with perineal straps was fitted around the trochanters and the patient was allowed to walk about. Shortening on the operated side was about a quarter of an inch. A skiagraph taken by Prof. Goodspeed a short time after showed both hips in place. At the present time, eleven months since the last operation and a year and ten months after the non-operative replacement of the right hip, she walks with a slight limp. The shortening amounts to a half inch and she has lost entirely the waddling gait. The back is now straight, the lordosis having disappeared. About three months ago she had an attack of scarlet fever and since that time has not worn her hip belt nor any apparatus whatever.

DISCUSSION.

DR. BERTHA LEWIS.—I have the skiagraphs which show the dislocation in a similar case, more marked in the right hip than in the left. The left hip shows a wide acetabulum and no close juxtaposition of the head of the femur with the acetabulum.

The gait is so characteristic and the lordosis in these cases is so marked that it seems incredible that any one at all familiar with orthopedic work should have failed to make a diagnosis, and yet this case has been seen by a dozen physicians, including two surgeons, without the proper diagnosis having been made. The case had been diagnosed for pseudomuscular hypertrophy and was for thirteen months in the hands of an electrician being treated for that disease.

I should like to ask whether in the after treatment Dr. Davis applied a plaster cast to retain the position after replacement.

DR. DAVIS.—After the replacement by manipulation the limb was placed in an abducted position with the legs rotated somewhat outward. This position was maintained for a considerable length of time. A strong elastic hip bandage was adjusted, coming around the crest of the ilium and over the trochanters, being prevented from rising up by two perineal bands. This was the only support she ever wore. It was worn until three months ago, since which time she has not worn anything.

DR. F. A. PACKARD read a paper entitled

A BRIEF NOTE ON KERNIG'S SIGN.

(See page 258, April No. ARCHIVES OF PEDIATRICS.)

DISCUSSION.

DR. D. L. EDSALL.—I have seen one case which may be added to Dr. Packard's list in which it was known by autopsy that meningitis was present and yet Kernig's sign was absent. A child two years of age was admitted to my service at St. Christopher's Hospital with a diagnosis of tuberculous meningitis. The case had the usual appearance of this affection, but it ran a protracted course. Kernig's sign was absent every day. The child died about six weeks after coming into the hospital with signs of acute internal hydrocephalus, and the autopsy showed marked internal hydrocephalus with unquestionable tuberculous meningitis.

The possible occurrence of the contrary fallacy—that the sign may be present without meningitis—was exemplified by another case, that of a boy of six years, which showed high temperature and violent delirium at first, but afterward ran a typical course of typhoid fever. Kernig's sign was present from the time of the boy's admission until he was convalescent. He had no other signs of meningitis and even examination of the eye grounds were negative.

DR. ALFRED STENGEL.—I recall two cases of meningitis confirmed by autopsy in which Kernig's sign was absent, and I should also like to state that I have found this sign a number of times in cases which were unquestionably not meningitis, though not confirmed by autopsy, as the patients recovered.

I agree with Dr. Griffith in questioning the admission in a group of cases supposed to present Kernig's sign of any case in which there was general rigidity of the limbs and therefore stiffness and inability to extend the knee in any position.

DR. MCKEE.—An interesting case I saw last summer I think there was unquestionably meningitis with the presence of Kernig's sign. There was a very bad family history. Two children had died from hydrocephalus, and there had been a number of abortions and miscarriages. The child had been practically well up to the time she was nine months of age; but she was considered decidedly under size. At that time her head commenced to enlarge very decidedly. When I first saw her, she was seventeen months old. The mother stated that for some weeks she had had peculiar movements of both arms, and stiffness of the legs. The child also had fever. She was fast becoming blind. She had very curious movements (clonic spasm)

of both hands and arms (usually two or three rhythmical movements per second). This fact struck me as being of decided interest, since it has been claimed that from the motor cortex we may have from two to four discharges per second. We had her in the Polyclinic Hospital for about eight weeks and during that time Kernig's sign was present. The more acute symptoms disappeared under specific treatment (rapidly increasing doses of the iodids). Two months after her return to Allentown, I had a note from her doctor telling me that she was much better, but he told me nothing definite regarding her symptoms. I believe this was a case of meningitis, probably specific, and almost unquestionably of the cortical type.

DR. PACKARD.—I agree with the criticism that it is not fair to call Kernig's sign simple inability to extend the leg on the thigh. Kernig states that if you lay the child down and flex the thigh on the abdomen you can extend the leg; but that if you sit the child up in bed and then flex the thigh on the abdomen it can not extend the leg, although it could do so when lying down. I have seen during the last year a considerable number of cases of cerebrospinal meningitis in which Kernig's sign was reversed, that is, the leg could be extended when sitting up, yet there was inability to extend it when the patient was lying down. There is a man in town with whom I have often talked over Kernig's sign who has shown me how absolutely impossible it is for him to get his leg anywhere near in line with his thigh when he is sitting up. As soon as he gets beyond a slight degree of extension it at once gives him pain. The man has no meningitis whatever. I would not, however, by any means desire to be thought to be making light of Kernig's sign. I believe it is a good sign as an aid when other signs are not positive. I believe its absence in infants is easily explained by the condition of normal hypotony in young babies.

The question of particular importance is the fact that absence of Kernig's sign might possibly make us err in thinking that the case was not one of meningitis, but simply one of meningismus, a diagnosis otherwise often extremely difficult to make.

Pathology.

Friedjung, Josef K.: Contributions to the Physiology and Pathology of the Blood in Children. (*Die Medicinische Woche.* 1900. Nos. 1 and 2.)

The quantity of hemoglobin in the blood can be judged in three different ways. The method most commonly employed is the one devised by Fleischl. This gives rapid and fairly accurate results; but as by it coloring matter obtained in the plasma is referred to the hemoglobin, frequent errors and inaccuracies arise. Another way of determining the amount of hemoglobin is to ascertain the specific gravity of the blood and to employ this value in estimating the quantity of hemoglobin. The method devised by Hammerschlag and Diabella gives still less reliable results. A third method has been based on Hoppe-Syler's theory, that iron enters in the composition of the hemoglobin molecule in a constant and unvarying proportion. Here, then, the quantity of iron in a given sample of blood is determined by analysis and the amount of hemoglobin found by a simple calculation. One source of error in this method is the fact that, as Jellinek has shown, the amount of iron present in the blood in health varies from 0.07 per cent. to 0.035 per cent. He has also been shown that under certain pathological conditions iron occurs in the plasma and perhaps even in the leucocytes in quantities sufficient to affect the result of the test. Iron has also been found in the contents of the thoracic duct, when iron had been administered therapeutically and this would make it probable that it might be found also in the plasma of persons taking iron. In order to determine how far it is possible to draw conclusions as to the quantity of hemoglobin from the amount of iron in a given specimen of blood, the author has made a number of observations on the blood of healthy and sick children, varying in age from birth to puberty. He employed in his experiments Jolles' ferrometer. In carrying out the examination a measured quantity of blood is incinerated, then treated with potass. sulphate, its iron dissolved in dilute HCl and ammonium sulphocyanate added. The color of the resulting fluid is compared with that of the solution prepared in the same manner but containing a known amount of iron. The percentage of iron in the blood can now be read off from a table furnished with the apparatus. Hladik and Jellinek have made these examinations of the blood of adults and have found the average amount of iron in the blood to be 0.0425 per cent. It was to be expected from other observations that the blood in childhood would not reach this figure. In four healthy infants, three of which were breast-fed, the amount of hemoglobin calculated from the iron varied from 47 to 51 per cent. (Fleischl's

hemometer gave 55 to 60 per cent.). As the number of red blood corpuscles was about the same as in adults, Friedjung draws the conclusion that these corpuscles contain normally less hemoglobin in infancy. After the first year a decided increase in hemoglobin is noticeable, but, nevertheless, up to the time of puberty the amounts fall short of those observed in adults. The sudden increase after the first year is due to the change from a pure milk diet to one more varied and richer in iron. The increase at the time of puberty is probably due to the organism acquiring with other changes of growth, that of appropriating a larger amount of iron from the food.

The pathological conditions in which the blood was examined are divided into three groups. In the first group have been placed several cases of diphtheria, acute bronchitis, lobar pneumonia, serous pleurisy, chorea, acute nephritis and one case of sepsis (gangrene of the arm), following influenza. While this group shows few variations from health and while the figures obtained from the hemometer and those of the ferrometer correspond pretty closely, they show in some instances important variations. The hemometer in one case of serous pleurisy after two weeks' illness and again one week later, when the patient was convalescent and eating ravenously, on both occasions gave 60 per cent. hemoglobin, while the hemoglobin figure obtained by the use of the ferrometer was 48 per cent. in the first instance and 58 per cent. in the last.

The second group embraces diseases of the blood: chlorosis, some of the grave anemias of early childhood and malaria. One of the cases of chlorosis shows also marked diminution in the number of red blood corpuscles, and in this case the ferrometer gives a much higher percentage of hemoglobin than the hemometer, probably because iron set free from broken down red blood corpuscles is present in the plasma and enters in the calculation. The coincidence of chlorosis with puberty is to be explained from the physiological conditions: the sudden increase of the amount of hemoglobin in the blood at that period. After the first year, there occurs a sudden increase of the quantity of hemoglobin, and this explains the occurrence of the not uncommon severe "primary" anemias of infants of from ten to seventeen months.

A third group of cases contains cases of secondary anemias, occurring in the course of tubercular disease in different organs, rickets, recurrent endocarditis and two cases of catarrhal icterus. These latter cases are of special interest as they show how unreliable Fleischl's hemometer is in these cases. At one time it showed 77 per cent. of hemoglobin, where the amount calculated from the ferrometer figure was only 52 per cent., on another occasion the difference between the two was 17 per cent.

Current Literature.

MEDICINE.

Nash, W. G.: **Scarlet Fever Without Eruption.** (*British Medical Journal.* No. 2033. 1899.)

Out of nine cases of scarlet fever, three had no sign of a rash, had sore throat and fever, and desquamated. Two of them happened in houses where another person developed well marked scarlet fever. All the patients drank milk supplied by the same dairy, and it may be inferred that the milk was the cause. If these cases without rash had occurred independently of more marked scarlet fever and when the milk supply was not suspected, it would have been almost impossible to have made a correct diagnosis. The three cases all showed some desquamation.

Sutherland, G. A.: **Mongolian Imbecility in Infants.** (*The Practitioner.* Vol. lxiii., No. 6.)

The study of the disease was made from an observation of twenty-five cases. At birth the infants are small and growth proceeds at a much slower rate than is normal. The skull is usually small and shortened in the anteroposterior diameter at the base, globular and smooth in the convex region. The basal portion of the skull is not developed equally with the other parts. The fontanelle is large and very late in closing. The face as a whole is small and rounded, sometimes described as "full moon," but often the features are blurred and swollen from the excess of fat. The bridge of the nose is flat or sunken, and the overlying skin is lax and frequently extends over the eyes for some distance. The cartilaginous part of the nose is broad and "buttony," and the openings of the nostrils directed upwards. The eyes appear small from the narrowness of the palpebral fissure, which is further characterized by an oblique position, sloping downwards and inwards. These two conditions suggested the use of the term "Mongolian." Nystagmus and squinting are often present during the first six months of life, but pass off as the infant grows. The mouth is usually kept open and the tongue is often protruded—a condition partly due to the large size of that organ, and partly to the diminished space in the buccal cavity. This protrusion of the

tongue is not constant as in cretinism, as the tongue may be protruded and retracted. The upper respiratory passages are diminished in size, and snoring breathing is common.

The chest does not present any special peculiarities, but the abdomen is large and distended. Hernia and protrusion of the bowel are frequently present. The pelvis is small, and the rotundity of the abdomen is partially produced by the upward displacement of some of the pelvic contents, such as the bladder. The long bones of the extremities are, as a rule, shorter and smaller than usual. The hands are short and square, the little fingers and thumbs are often small in proportion to the length of the other digits. The second phalanx of the little finger is considerably shorter than normal, and there is much lateral displacement of the terminal phalanx. This is not a constant but very frequent symptom. The ligaments of the large and small joints are loosely strung, there is great mobility of the joints. There is also a delay in the development of the normal muscular tonicity. There is no real paralysis. Congenital heart disease is common. Five cases, or twenty per cent. of those under observation, presented a well-marked systolic murmur. Occasionally other congenital defects are found, such as congenital club-foot, imperforate anus, cysts of the kidney and want of development in the stomach and upper intestine.

The mental characteristics were not manifested in any special way except that the development of intelligence lags behind that of normal infants. The infants are "too good," that is, they are not normal, as they require little attention. The power of fixing the eyes and following objects and observing things, and all other signs of dawning intelligence, are backward, so that at the age of one year the development will not be greater than that of a normal infant at six months. The growth proceeds slowly, dentition even in the absence of rickets is much delayed. It is not uncommon to find only one or two teeth cut at eighteen months. Muscular power and co-ordination are slowly acquired; talking and walking may not be learned until some time afterwards, the third or fifth year. While the body is small at birth and continues so for some time, there may be a marked deposit of adipose tissue especially about puberty.

These children are capable of education, though never

equal in that respect to the normal child of the same age. They will do well in special institutions. Their vital powers are much below normal and they bear illness badly. The temperature is sub-normal, the sensitiveness to cold is a marked feature. They also are predisposed to respiratory diseases. They succumb quickly to infantile diarrhea. The condition of the skull may depend upon one or two conditions, either a primary ossification of the basilar bones or defective growth in the structures at the base of the brain. Whether a congenital defect in the basal structures of the brain will produce this type of imbecility, it is impossible to say. There is probably some change in the higher centres which is not so manifest, which has not yet been discovered. Syphilis plays an important part in the etiology. Out of twenty-five cases syphilis was definitely present in eleven patients, and from the symptoms and history it was strongly suspected in three others. In the treatment thyroid gland has not had a beneficial effect; a similar result has followed from the employment of thymus gland. Many of these patients who present signs of active syphilis have been improved by the usual anti-syphilitic treatment, but there have been no changes in the mental or physical characteristic of the mongolism. In the absence of any known cure, treatment must be general and symptomatic. The sensitiveness to cold and the sub-normal temperature must be considered. The onset of an acute illness must at once be followed by special precautionary care. The symptoms resulting from the congenital heart disease have not been such as to call for any treatment. The same remark applies also to the umbilical hernia, which usually disappears.

Hutchinson, Jonathan : On Mercurial Teeth. (*The Polyclinic*. Vol. ii., No. 1.)

It is easy, in any case in which a full set of the permanent teeth has been cut, to tell whether the patient has taken mercury in infancy. A guess may also be made as to the exact age at which the mercury was given. The first molar is the tooth to look at, and its condition should be contrasted with that of the two bicuspidis in front of it. If the latter are white and sound whilst the molar is defective as regards its enamel, and is either destroyed by caries, or shows projecting spines of exposed and discolored dentine, then it is almost certain that the enamel

organ of the tooth was damaged by alveolar congestion in infancy. This tooth is the first of the second set to calcify, and is therefore the most in risk of damage by mercurial stomatitis in very early infancy. Simultaneously with it, the canines and all the incisors frequently escape, whilst the two bicuspid almost always escape. If the mercury be given late in infancy, during or after the second year, then the first bicuspid may suffer also, but the hinder one almost invariably escapes. Long experience has convinced him that these points are trustworthy.

Irvine, H. W. : Scarlet Fever Without Eruption. (*British Medical Journal*. No. 2036. 1900.)

A girl of eighteen complained of sore throat. There was a fever ranging from 102° to 103.5° F. She lived with her parents in an isolated house and there was no scarlet fever within several miles. There was no rash whatever. On examination of the urine, a test for albumin was negative, but the urine was found to contain kidney and bladder epithelium. The diagnosis of scarlet fever was then made, and verified by the subsequent desquamation.

Vail, Derrick T. : The Tonsillar Ring. (*The Cincinnati Lancet-Clinic*. Vol. xlix., No. 1.)

After a description of the lymphoid tissues and the injury done to children by adenoids and other enlargements of these lymphoid structures, he describes the hypertrophied condition of the lingual tonsil. While this is more common in adults than in children, it may be present and cause some of these symptoms:

Sensation of a lump in the throat, which the patient is constantly endeavoring to swallow, but which seems to lie just outside of the reach of the muscles of deglutition.

The barking cough at puberty—"grave-yard cough."

Constant desire to clear the voice by hemming and hawking, with nothing raised.

Relief of symptoms during meal time.

Spasmodic asthma.

Globus hystericus.

Vague distress in the throat that the patient cannot locate or describe.

Blood-stained sputum (varix).

Of course, all these symptoms never occur in a given case. Usually only a single one predominates.

Pribitkoff: A Case of Hemato-Myelitis Centralis (Hematomyelia). (*Dietskaja Medizina*. No. 6. 1899. *Archiv f. Kinderheilkunde*. B. xxviii., H. 3 and 4.)

A boy of sixteen, who had tried to stop a runaway horse, suffered from formication in both arms, which was followed by complete paralysis of the arms and the left leg, paresis of the right leg and of the sphincter vesicæ. After ten days motion returned to the paralyzed limbs with the following phenomena; Increased patellar reflexes, complete absence of the sense of pain and of the thermic sense in the upper portion of the body, less complete in the lower portion; atrophy of the muscles of the shoulder, arm and forearm; diminished electrical excitability and reaction of degeneration of the muscles of the forearm; marked ankle clonus; dermatographismus and interference with the proper action of the sphincters. The lesion, apparently, in this case was a hemorrhage into a large portion of the gray matter of the cord, especially the left posterior cornua, but also into the anterior cornua, on the level of the first to eight dorsal vertebra.

Hall, J. N.: General and Local Infection by the Bacterium Coli, with Report of Cases. (*Philadelphia Medical Journal*. Vol. iv., No. 27.)

Present normally in the intestinal canal, and often about the foreskin, vulva and neighboring parts, the bacillus coli communis is occasionally found in the normal anterior urethra. It is usually harmless when found in these localities, but it is extremely pathogenic in many cases when transplanted elsewhere. Two cases are recorded, one being a boy of five and a half years, who had rheumatism for six days. When he was examined he had had retention of urine for nearly twenty-four hours, which was immediately relieved by catheterization. This urine was cloudy, acid, and contained great numbers of the colon bacilli, which persisted throughout the course of the disease. Dry pleuritic friction was heard in the left chest. During the next two days the pleurisy extended. On the following day bronchopneumonia was noted. The abdomen was distended, and, with the high temperature and facial appearance, suggested typhoid fever. The Widal reaction was negative, and nothing further indicative of typhoid arose. A purpuric eruption was present, scattered sparsely over the body, during

the greater part of the illness. Pericarditis with moderate effusion presented itself. About the end of the second week there was pain over the left kidney, with a discharge of pus in the urine. This continued until death two weeks later. During the last two days of life he vomited small amounts of pus and urinous-smelling matter, stained with blood. No autopsy was obtained. There seemed no room for doubt that a pyelitis had followed the cystitis, and that a perinephritic inflammation had eventually broken through into the digestive tract, permitting the vomiting of urinous matter.

In the case of a man a great number of colon bacilli were found in the urine; but the most striking feature of the case was the gas accumulated in the bladder and escaped with a loud bubbling at intervals, especially during catheterization. The autopsy in this case showed a general septic state. The symptoms, those of obscure septicemia, do not seem to yield to treatment. Treatment has been of so little avail, that little stress is laid upon it. The most obvious lesson is that we should be careful in the use of the catheter to avoid infection, although this had already occurred in both the cases quoted.

Haight, Allen T.: Nasopharyngeal Adenoids as a Causative Factor in Ear Diseases. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 26.)

Adenoid vegetations seem not to be restricted to countries, to climates, to sex, to color or race of man. In Greenland in sixty Esquimaux children between six and fourteen years of age, only sixteen were found free from adenoid vegetation. In North Dakota adenoid vegetation is frequent among the native tribes of Indians, but the growths were very little developed in adults. Of three hundred children examined in Italy, adenoids were found present in two-thirds of them. The postnasal growths are just as common among the best classes of society as in the poorer. Adenoids produce inflammation on account of the obstruction of the circulation of the blood by pressure, by blocking the orifice of the Eustachian tube, partially or completely, by other injuries affecting the general economy of the child, and particularly the nerves of special sense, by leaving a postnasal catarrh as a sequela, which sooner or later establishes some form of middle ear disease. A number of cases of postnasal growths in the new-

born have been reported, and it is believed that many children become deaf from this cause. In an examination of twenty-six children for deaf-mutism, only four were found free from post-nasal adenoids. At the first recognition of existing growths, the operation should be performed at once, by whatever method best suits the case in hand. Curetting is the only true basis of treatment. Before the age of twelve years, general anesthesia must be used, but after that time, except for very nervous children, a local anesthetic is generally sufficient. In children it is advisable to anesthetise in a sitting posture, and the bromid of ethyl is preferable to any other of the numerous anesthetics. It is easily administered, anesthesia is quickly produced and it is of sufficient duration for the operator to remove both tonsils and adenoid vegetation, if necessary. Constitutional treatment should not be omitted.

Barksdale, George E.: Typhoid Fever Complicated by Cancrum Oris. (*Richmond Journal of Practice.* Vol. xiv., No. 1.)

A mulatto boy, four years of age, had typhoid fever. About the tenth day he developed a phlegmonous swelling of the left cheek. Previous to this he had had the most fetid breath, for which an antiseptic wash was ordered. The enlargement continued despite the most combative treatment, so the swelling was opened but no pus was found. A day later the wound was black; a slough formed and the swelling subsided. The gangrene continued, and when a line of demarcation had formed dead tissue was removed. It was also noted that the other cheek was going through the same process. Under chloroform the site of the first gangrene was excised, curetted and wiped out with nitric acid. The patient reacted well, but the other cheek sloughed and the sloughing mass had to be removed. He died shortly after from exhaustion.

Steen, R. H.: Diphtheria, Parturition, Retained Membrane, Influenza, Diphtheria in the Infant. Recovery. (*British Medical Journal.* No. 2045.)

A pregnant woman was taken ill with diphtheria. Three days later a full term infant was born. Every precaution was taken with regard to the baby, but when four days old it was noticed to have slight difficulty in nasal breathing. When five days old a distinct patch of membrane was seen on the right

tonsil and a dose of 350 units of antitoxin was injected subcutaneously. The following day there was little improvement and a dose of 1,000 units was given. The child made an uninterrupted recovery and was in no way harmed by the large dose of the serum. The Klebs-Löffler bacillus was found in the case of the mother, but no note was made of its presence in the infant.

Abt, I. A.: Spasmus Nutans. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 5.)

Two cases of head nodding are reported, and the literature of the subject is quoted in an article with the above heading.

Rickets is the most common cause, though injuries are known to cause it. There may be other influences, but there is no central lesion.

The cases of spasmus nutans are not to be confounded with the eclamptic form which usually terminate in irregular epileptic attacks.

The general health should be cared for, and tonics given as indicated. Bromid of soda exercises a favorable influence on the disease.

Still, George F.: Day Terrors (Pavor Diurnus) in Children. (*The Lancet.* No. 3988. 1900.)

Few cases of pavor diurnus have been reported, Three cases are detailed by the author. One was a boy of six and a half years, the second a boy of three years, and the third a girl of four and a half years.

The symptoms are fairly constant. A nervous, excitable child, in the midst of his play, or while sitting quietly in a room with other people, suddenly, without any apparent cause, begins to scream and look terrified. Sometimes he imagines that some person is coming after him. There is no loss of consciousness. The duration of the attacks varies from a few seconds up to about a quarter of an hour, and their frequency may be as often as from once a fortnight to twenty in a day. The day attacks may be associated with night symptoms, and they may occur without any nocturnal disturbance. These children are of an excitable, nervous temperament. A family history of rheumatism was obtained in the three cases. The attacks are probably identical with night terrors. They are allied to epilepsy in the sense that they are a paroxysmal neu-

rosis. Day terrors are probably excited, as are night terrors, by irritation of the gastroenteric tract, especially that form known as "mucous disease." It was particularly observed that the day terrors were worse when there was constipation.

Potassium citrate is the drug found most useful. Thread-worms or other sources of irritation must be removed by suitable treatment.

The bromids have a good effect, either given alone or in combination with belladonna. In school and at play the child must be kept from all excitement and mental strain.

SURGERY.

Concetti, L. : Malignant Tumors of the Bladder in Children. (*Arch. de Méd. des Enfants.* Vol. iii., No. 3.)

A girl baby, eleven months old, healthy at birth, had pain and difficulty in urinating; and during one of the paroxysms, a small, hard, red tumor appeared at the vulva. This was connected with the right wall of the urethra and base of the bladder (no other tumors being felt by sound, in the bladder) and grew visibly. It had dilated the bladder, and had evidently been expelled by the contractions of the vesical wall and the vis a tergo of the urine combined. The child had neither hematuria nor fever, but a consuming thirst and restlessness. Laparotomy was performed, but the bladder walls were so thickened and the tumor had so large a base that it was found impossible to do more than remove the prolapsed portion. Death occurred forty-six hours later. At autopsy a large, hard tumor was found to occupy the trigone and inferior portion of the right bladder wall, obscuring the orifices of the ureters. The latter were dilated as were the pelvis and calyces of both the kidneys. Microscopically the growth was a small, round cell sarcoma.

Of 42 cases of vesical tumors collected from literature, 22 were sarcomatous, 10 myxomatous, 6 were fibromyomata and 1 was a dermoid cyst. The fact that the majority appear under the age of five years, (twenty-nine of forty-two) favors the view of their embryonal origin. Heredity does not seem to be of importance. Tumors of the bladder are most often polypoid in form and multiple, but not disseminated; they are massed, some pediculated and some sessile. The chief seat of implantation seems to be the trigonum vesicæ, the posterior wall being

involved next in frequency, the anterior and lateral next and the superior most rarely. Metastatic deposits occurred only once, in the retroperitoneal lymph nodes. The chief symptoms are retention or incontinence of urine, with tenesmus and abdominal pain, hematuria may be absent, but when present its spontaneity, abundance, repetition and resistance to treatment are characteristic. When the tumor presents at the vulva, it must be ascertained whether it originates in the uterus, vagina or bladder. Catheterization is a great help in the diagnosis, the cystoscope is not adapted for use in young children. Hypertrophy of the bladder and the symptoms of uremia may appear late, as the result of obstruction. The prognosis is very grave, there being only five recoveries recorded among forty-two cases. Four of these were benign tumors, cured by operation. Left to themselves the growths are always mortal, even the so-called benign ones, which cause death by hemorrhage or by pre-disposing to infection of the urinary tract. Operation should be done early, and not only the tumor itself, but the surrounding portion of the bladder removed, in order to obviate a recurrence.

Nayond: Perirenal Urinary Infiltration of Traumatic Origin. Laparotomy; Cure. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 3.)

After a fall from a carriage, a little girl, eight years old, complained of abdominal pain in the left side, radiating into the thigh. The abdomen grew steadily large, and the child began to become emaciated. There was constipation but no vomiting. Blood had been noted in the urine two hours after the accident, and on several other occasions; the urine was not diminished in amount. A firm, immobile, sharply limited tumor was present in the left renal region, giving a slightly fluctuating sensation. Laparotomy was performed, and three litres of urine evacuated from a pocket adjoining the left kidney. Recovery was complete.

The case is one of traumatic pseudo-hydronephrosis, probably brought about by a rupture of slight extent in the kidney, pelvis or ureter, which allows the urine to trickle, drop by drop, into the perirenal cellular tissue. Thus the slow formation of the tumor is accounted for.

It was not positively known whether or not the wheel of

the carriage passed over the child's body, but she was found unconscious after the accident.

Breton: Appendicitis with Abnormal Onset; Death in Ten Days. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 3.)

A girl of thirteen had a dilated cecum and large intestine as a consequence of chronic constipation. Digestive disturbances had been marked for some time, when general malaise, vomiting and repeated chills appeared. There was absolutely no abdominal pain nor tenderness, but severe headache, and no fever. Two days later there was slight tenderness at the pubic symphysis, and at the umbilicus, with a vague sensation of resistance in the right flank, the abdomen being somewhat distended. The temperature had risen to 39° C. and the pulse was rapid, vomiting continued. Appendicitis was diagnosed, and on the fourth day the symptoms were marked. Operation was performed, and a fetid serous fluid evacuated from the abdominal cavity. The appendix was neither seen nor felt; vomiting and peritonitis symptoms continued, and death resulted six days later from septicemia. The only early sign which pointed to appendicitis was the drawn expression of the face.

Bingham, George A.: Spina Bifida. (*The Canadian Practitioner and Review.* Vol. xxiv., No. 12.)

This malformation occurs once in 1,000 births. The cases reported were 8 in number; 7 were meningoceles, 1 a meningo-myelocoele; 7 of the 8 cases were in infants; 1 was in an adult. The associated involvements may be classified as follows:

One case of paraplegia, with complete loss of control over bladder and rectum (this case, by the way, was fatal, and was a simple meningocele); 3 cases of club-foot—1 single, 2 double (2 of these cases were meningoceles, 1 meningo-myelocoele); 2 cases of hydrocephalus, both of which terminated fatally (as to previous convulsions, the histories were imperfect and doubtful, and are therefore omitted).

Of these 8 cases there were 6 cases of *permanent* recovery and 2 deaths—a mortality of 25 per cent. These cases were not selected. In one of the fatal cases, the child, a hydrocephalic, was dying when operated upon. It was a simple meningocele, with the sac ulcerated and leaking in places, and was

rapidly closed off with mattress sutures and cut away, the lateral flaps brought over and united. A few minutes completed the operation, and the child lived twenty-four hours.

The other fatal case, a large meningocele, which had previously been tapped, did perfectly for twelve days, then leakage began. This continued for some days and finally ceased. Symptoms of sepsis developed several days after this event, and the child died on the thirtieth day after the operation. This child was hydrocephalic.

As to technique, in the earlier cases the sac was tied off, or, if large, stitched off with mattress sutures; then flaps of skin and subcutaneous tissue were brought over and sutured.

In every case where the slightest doubt existed as to the contents of the sac, it was deliberately opened before being closed off, no extraordinary effort being made to prevent the escape of cerebrospinal fluid.

The nurse is a potent factor in the success or failure of the operation. During the first week the child should rest on its abdomen in such a way that the wound should be the highest point upon the body, and every precaution taken to prevent infection from excreta, etc.

Those who advocate the open treatment at all, are well agreed as to the methods to be adapted in cases of meningocele. It is in cases of meningo-myelocoele that difficulties and differences arise. The nerve elements of the cord within the sac must not be sacrificed, and, if possible, should be restored to the spinal canal.

There are three different methods by which we may meet the three conditions already mentioned: 1. The simple meningocele treated in the usual way. 2. The sac, containing a moderate number of nerve filaments, treated by Mayo Robson's method of "ribboning" the sac, removing the redundant portion and replacing the nerve filaments within the canal. 3. The sac filled with expanded nerves, in which case Nicoll simply scarifies the whole interior without attempting to reduce the mass, and trusting to fibrous inflammation to obliterate the sac. There might be a fourth class of cases mentioned, in which the sac is ruptured during the birth of the child. Spontaneous cure in these cases is very exceptional, and the child should be given the benefit of an immediate operation.

HYGIENE AND THERAPEUTICS.

Fielder, Frank H.: **A Criticism Upon a New Method of Preparing the Skin for Vaccination by Denudation with Caustic Potash Solution.** (*Medical Record*. Vol. lvii., No. 4.)

The author mentions Hutchin's method of denuding the skin for vaccination by means of liquor potassæ and also by the stick potassium. After a series of experiments, in which primary vaccinations were made by scarification and also by the use of the potash, he arrived at the conclusion that the result is less satisfactory with the potash than with scarification. Williams, a bacteriologist of the health department, found changes in the skin caused by the potash and regarded the difficulty in these vaccinations to be due to the presence of increased tissue or to its alkalinity.

The advantages of the denudation by KOH are: (1) It is less painful and terrifying. (2) It does not draw blood.

The disadvantages are: (1) It takes more time. (2) It requires more skill. (3) It is difficult by this method to denude an area small enough; the vesicles are likely to be too large if the virus is very active. (4) It is less certain than scarification, no matter how skilfully done, because of the formation of an eschar, which interferes with absorption.

Way, J. Howell: **Croupous Pneumonia in Children.** (*North Carolina Medical Journal*. Vol. xlv., No. 12.)

After detailing the history, symptomatology and etiology of this disease, the author states that he has seen a number of children who have had recurrent attacks. One boy who came under his observation had five different attacks of pneumonia, though otherwise in good health and a strong and vigorous boy.

In the treatment it should be recognized that there are no specifics for the disease. The child with croupous pneumonia should be put in bed in one of the best lighted and ventilated rooms of the house. The skin should be bathed in warm water, followed by an alcohol sponge. A regular temperature of 65° to 70° F. should be secured in the room, air being moistened by the evaporation of some water. Milk with lime water or peptonized milk is for the majority of cases the ideal food. The medicinal treatment should be initiated by the administration of a mercurial. For the feverish irritation tincture of aconite in small and oft-repeated doses, in combination with spirits of

nitrous ether and liquid ammonia acetatus, prove a very satisfactory plan of treatment. If there is very much restlessness, fluid Dover's powder may be added to this mixture. For cerebral symptoms, chloral hydrate is invaluable. If the respiration is unduly hurried, the cough dry and the expectoration scanty or not at all, hot baths with ipecac wine or syrup give most relief. The use of the specific antipyretics, while in sufficient doses gives a marked lowering of temperature, is mentioned only to be unhesitatingly condemned. Children bear high temperature with far less prostration than in the hyperpyrexias of adults. Just before and in the beginning of the stage of resolution, strychnia and alcohol are often of undoubted value. Carbonate and muriate of ammonia are also useful at the time of resolution. Local applications of turpentine, mustard and iodine have each their appropriate place. Quinin in convalescence becomes one of our most valued tonics. Where slight fever persists, a careful examination should also be made for a possible pyothorax.

Henderson, W. R.: Croup. (*The Physician and Surgeon.* Vol. xxi., No. 11.)

Croup is of two varieties—spasmodic, or false croup, and membranous, or true croup. With all possible care in differentiating, there will be cases in which the diagnosis will remain for some time in doubt. Such cases will continue for a number of days without the condition taking on a serious aspect. For the spasmodic croup it is sufficient to keep up the general tone of the child, remove exciting causes, such as adenoids, enlarged tonsils, etc., and the use of steam inhalations with creosote. Antipyrin is beneficial when spasm is marked. Spasmodic croup is characterized by a variable amount of catarrhal inflammation, besides the spasm of the larynx. On making a diagnosis of membranous croup, a full dose of antitoxin should be given immediately. Calomel fumigation is very effective in relieving stenosis. Intubation should be performed when the child shows restlessness or recession of the epigastrium. Since the introduction of antitoxin the death rate ranges from thirty per cent. down to five per cent., whereas before antitoxin it ranged approximately from eighty per cent. down to seventeen per cent.

The American Medical Association.

ANNUAL MEETING AT ATLANTIC CITY, N. J.,

JUNE 5-8, 1900.

SECTION ON DISEASES OF CHILDREN.

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2. Session devoted to the Consideration of Contagious Diseases.
Papers by C. F. Wahrer, M.D.; H. Koplik, M.D.; J. F. Schamberg, M.D.; J. L. Morse, M.D.; Joseph Trumpp, M.D.; A. S. Daniel, M.D.; J. H. Byrne, M.D., and others.
3. Session devoted to the Consideration of the Feeble-minded and Nervous Diseases.
Papers by M. W. Barr, M.D.; S. J. Fort, M.D.; A. W. Wilmarth, M.D.; J. M. Taylor, M.D.; L. F. Bishop, M.D.; W. M. Leszynky, M.D.; J. Clements, M.D., and others.
4. Session devoted to Diseases of the Blood and Circulation.
Papers by H. E. Tuley, M.D.; S. E. Woody, M.D.; J. A. Robison, M.D., and H. Illoway, M.D.
5. Session devoted to Infant Feeding and Diseases of the Intestinal Tract.
Papers by A. Baginsky, M.D.; E. Small, M.D., and S. Weiss, M.D.

Papers on surgical subjects are promised by I. A. Abt, M.D.; T. H. Manley, M.D.; L. Fischer, M.D., and others.

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[No. 6.]

Original Communications.

CLINICAL OBSERVATIONS UPON THE OPERATIVE TREATMENT OF TUBERCULOUS PERITONITIS.*

BY AUGUSTUS CAILLÉ, M.D.,

Professor of Pediatrics, New York Post-Graduate Medical School and Hospital.

By reason of its peculiar clinical behavior, tuberculous peritonitis claims in a high degree the interest of the physician and surgeon inasmuch as the brief exposure to the air or sunlight of a portion of the accessible infected area is apparently the starting-point of a reparative or healing process in cases that have resisted other therapeutic efforts.

The opening of the abdomen is, as a rule, followed by an arrest of local disease symptoms, and may be followed by a disappearance of the tuberculous deposits on the peritoneum, as shown by certain cases in which the abdomen has been opened for some reason or other for the second time.†

Two points of special interest present themselves to the clinician:

1. Behavior of tuberculous peritonitis before the opening of the abdomen, or, in other words, the diagnostic features of the disease.

2. Its clinical behavior after laparotomy.

This report embraces not all the cases observed by me, but only such as were admitted to my service at the Babies' Wards, Post-Graduate Hospital, and carefully studied before and after operation and which had subsequently been under my observation for a period of from one to three years.

For the sake of brevity and to avoid repetition I will state that every case underwent a careful examination, including the examination of urine, blood, feces, and puncture fluids,

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

† "Tubercular Peritonitis Cured by Laparotomy." Dr. F. Jameson. *Buffalo Med. Journal*, May, 1899.

and no special mention will be made in the brief histories whenever the co-existing conditions were found to be normal. Much of the laboratory work was done in the laboratory of the New York Post-Graduate School, by Dr. H. T. Brooks.

CASE I.—Maurice J., six years old; admitted February 9, 1897; sick for the past five months; gradual swelling of the abdomen, loss of flesh, no pain.

Status on Admission.—Weight, forty-one pounds; temperature, 100° with subsequent rise to 103° ; pulse, 100; respiration, normal.

Physical examination showed normal conditions except as follows: The abdomen was swollen and somewhat tense, not painful on percussion or on palpation, and contained fluid. On auscultation much peristaltic unrest was noticeable. Double inguinal hernia also existed. A diagnosis of tuberculous peritonitis was made by exclusion, and between February 9th and April 16th creosote, creosote carbonate, guaiacol, ichthyol, and arsenic were exhibited internally and externally and by means of rectal irrigations, but without apparent benefit. On the contrary, a hard mass appeared soon after admission, in the scrotum, close to the testicles on either side, which slowly spread and was looked upon as a tuberculosis of hernial sac.

On May 16th the operation for double inguinal hernia was performed by Dr. B. F. Curtis, by the Bassini method. The peritoneum forming the hernial sacs on both sides and in the abdomen as far as the finger could reach when introduced into the inguinal rings, presented the usual pathological appearance of tuberculous peritonitis. The membrane was unusually thickened, covered with nodules and deposits of fibrin, and congested. There was some clear serum in the abdominal cavity; the testicles were healthy. The hernia was not congenital on either side. The wound healed in due time. I saw patient two years after operation and found him to all appearances perfectly well. Physical examination revealed no abnormality. It is to be noted that in this case the general abdominal cavity was not encroached upon at the time of operation.

CASE II.—Franz B., two and a half years old; admitted April 19, 1898; weight, twenty-five pounds; temperature, 99° , with occasional elevation; pulse, 112; respiration, 36. Patient eats well and looks well.

A careful clinical examination was made, which was negative except as follows:

Abdomen symmetrically distended, no fluctuation. A firm tumor within the abdomen, on each side, and a third tumor in median line higher up; each tumor has well defined, sharp margins; operated upon April 27, 1898, by Dr. B. F. Curtis; no

previous medication. The tumors were found to be large tuberculous deposits in the omentum, firm and vascular. Intestines studded with tubercles of all sizes. No fluid in abdominal cavity. Tumors not adherent to any organ and no enlargement of mesenteric nodes. One independent tuberculous nodule was found high up in the omentum. Ten grammes of a 10 per cent. glycerin-iodoform emulsion was put into the abdomen and the same was closed. Convalescence was uneventful. Eighteen months after operation the tuberculous tumors can still be felt but are very much smaller. There is no other evidence of tuberculous disease.

CASE III.—Isidor B., two and a half years old; admitted February 29, 1897; on admission looked anemic but not jaundiced; said to have large stomach for one year; weight, twenty-six pounds; temperature, 102.4°; temperature curve shows irregular low fever; pulse, 140; respiration, 48.

Complete clinical examination negative excepting abdomen, which was enormously distended; two quarts sero-sanguineous fluid were removed by trocar. The child has lost weight and strength and has pain. Constipation is noticed but no vomiting.

Operation July 19th, by Dr. Coley. Showed multiple encysted pus cavities and detritus and characteristic milary tubercles; the wound was drained; a subsequent counter opening was made by Dr. Lloyd. After a lingering illness the child died. The operation was not followed by any improvement.

CASE IV.—Declon B., four years, admitted August 8, 1898. Abdomen began to swell six months before admission, otherwise feels well. Clinical examination negative, excepting albumin and bloody epithelial casts in urine. Abdomen twenty-four and a half inches in circumference, distended with fluid; area of liver dulness extends from nipple to one inch below ribs. Weight, twenty-three pounds; temperature, 98° (subsequent irregular low fever); pulse, 124; respiration, 38.

Operation November 5, 1898, by Dr. Lloyd. Showed a characteristic tuberculous peritonitis. The abdomen was flushed with warm normal salt solution and closed; uneventful recovery. This boy is in very good health at the present time.

CASE V.—Elizabeth N., five and a half years old, admitted March 31, 1898. Her abdomen became large and tense a few months before admission to Babies' Wards; no pain. Weight, thirty-eight pounds; temperature, 99° (irregular low fever); pulse, 120; respiration, 24.

Careful clinical examination negative, except as follows: Encysted fluid in abdomen extending no higher than umbilicus; line of percussion flatness not changed by putting patient in Trendelenburg or other positions; dark brown fluid removed by puncture; gonococci in vaginal discharge.

Operation April 27, 1898, by Dr. B. F. Curtis. Peritoneum thick and adherent, large amount of dark brown serous fluid evacuated; adhesions broken by finger; intestines covered with miliary tubercles; abdominal cavity irrigated with saline solution and dried out; 10 per cent. emulsion of iodoform and glycerin used; abdominal cavity closed. The fluid evacuated had its source in a large cavity, which was separated from the general cavity above by adhesions which were not ruptured. A sinus from the abdominal wound persisted for about one year and closed spontaneously the middle of April, 1899. Directly after closure a cough set in, and on examination May 11, 1899, moist râles were heard over entire right lung. The sinus opened again and discharged; it was subsequently curetted by Dr. Wilson, and has closed completely. At the present the patient is well and has gained in weight.

CASE VI.—Julia D., three years old, admitted April 24, 1899. Twenty and a half pounds' weight on admission; temperature, 98° (fever curve irregular, from normal to 103° F.).

For two months before admission she complained of pain in abdomen, vomiting, and constipation. The clinical examination was negative, excepting abdomen, which was tender on palpation. Under ether the intestinal convolutions could be felt, also bands of tissue which proved to be adhesions.

The abdomen was opened April 24th by Dr. Dunham and a tuberculous peritonitis with intestinal adhesions found. The wound healed, leaving a fecal fistula with adhesions. Up to the present time her general condition is splendid. The fistula persists and will require further operative interference.

CASE VII.—Joseph F., six and a half years old; admitted June 15th. The boy's mother died of pulmonary tuberculosis. For six months past he has had spasmodic pain about the umbilicus. He is constipated, pale, and has no appetite. A careful examination reveals nothing of note, excepting a tender abdomen. Weight, twenty-three pounds; temperature, 100.4° (irregular low fever curve); pulse, 100; respiration, 24.

The appendix can be felt, but is not as tender as other parts of abdomen. The percussion sound is that found over collapsed intestine.

Operation was performed July 5th, by Dr. Wilson, and an adhesive miliary tuberculosis of peritoneum was found.

The abdominal cavity was flushed with saline solution and closed. The boy is quite well at present writing.

CASE VIII.—Joseph C., two and a half years old, admitted May 17, 1898. Three weeks before admission the abdomen began to enlarge, and child was feverish. The scrotum began to fill when child cried; the hernia now remains down continually; skin muddv-looking. Weight, twenty-three pounds: temperature, 101½° (irregular fever curve); pulse, 40; respiration, 36.

Abdomen distended, flatness on percussion, free fluid in peritoneal cavity; reducible right inguinal hernia; hemoglobin, 60 per cent.; red corpuscles, 5,417,000; white corpuscles, 6,250; urine, trace of albumin, hyaline casts. Operation May 27, 1898, Dr. B. F. Curtis.

Finger detected a large cyst cavity, extending to umbilicus, made up of small cysts containing considerable fluid; fluid evacuated; 10 per cent. emulsion of glycerin-iodoform introduced. The thickened peritoneum was closed with continuous catgut suture, skin also. A nodule from omentum proved to be tuberculous on microscopic examination; hernia not operated upon.

Examined May 11, 1899. Musical rhonchi on deep inspiration over scapula on both sides. Child pale but improved. Thickening of tissues in line of wound and line of old sinus. At present writing patient is pale and anemic, otherwise in apparent health.

CASE IX.—Isabella C., nine years; admitted January 24, 1898; weight, twenty-four pounds; temperature, 97° to 103° (irregular fever curve); pulse, 90-120; respiration, 30.

For past six months has had severe pain in abdomen and four to five stools during day and as many at night, losing flesh rapidly. Abdominal tenderness marked. Abdomen flabby; palpation reveals nothing noteworthy. No ameba or tubercle bacilli in stools. No plasmodia in blood. Red cells, 5,025,000. A careful examination showed no other abnormality. As the parents of the girl refused to permit an operation for the suspected tuberculous condition, all known methods of internal, percutaneous and rectal medication were persisted in for the greater part of two years.

In November, 1898, the girl looked very anemic and the abdomen was tender and tense, but her weight was thirty-six pounds. In March, 1899, her weight was down to twenty-eight pounds. She had much diarrhea and vomiting and intense paroxysmal pain, also some cough and general anasarca. In February, 1899, the parents of the patient gave permission to open the abdomen (Dr. Wilson). The intestines were found to be matted together by tuberculous tissue and the adhesions were found to be too tense to be broken up. There was no pus. The accessible portion of the abdominal cavity was flushed with saline solution and the abdomen was closed. The girl died in October, 1899, from exhaustion. No autopsy.

In this case pain and paroxysms, diarrhea and low irregular fever were the symptoms for the greater part of two years. Palpation of the abdomen revealed nothing abnormal.

CASE X.—Girl of nine, Flora B., who was afflicted with a not very extensive tuberculous infection of right lung apex and whose abdominal symptoms came on gradually. She had pain

in paroxysms, pain on pressure. Various dull areas next to tympanic spots in abdomen. Occasional fever and loose bowels. On abdominal section the intestines were found matted together, the interspaces were filled with a dark yellow fluid and some detritus. Microscope revealed tubercle bacilli. Iodoform-glycerin introduced; drainage; marked improvement, but died from general tuberculosis two years later.

The following three cases have also been under observation for at least one year, but I have since lost track of them and am unable to report as to their present condition, and whether they are alive or dead.

CASE XI.—Harry V., five years old, admitted October 12, 1897. Patient was apparently well up to two months before his admission to the Babies' Wards, when he lost his appetite and began to vomit; he coughed and expectorated; had fever and sweating and dyspnea. Weight, forty pounds; temperature, 100° (irregular fever curve); pulse, 140; respiration, 40.

A careful clinical examination revealed: abdomen distended, superficial veins prominent, fluid in abdomen; area of fluid dullness changes with position. Sonorous râles and rhonchi are heard all over the chest. He looks anemic and poorly nourished. Abdominal section by Dr. Curtis showed tuberculous peritonitis. Iodoform and glycerin introduced; closure of abdomen; perfect healing of wound; discharged improved, and lost sight of a year ago.

CASE XII.—Hattie V., four and a half years old, admitted March 2, 1898. Weight, twenty-eight pounds; temperature, 100° (irregular fever curve); pulse, 132; respiration, 32.

This patient had a tuberculous look or habitus, and it was stated that her abdomen had begun to swell some time before admission to the hospital. She was constipated, had fever, but no cough, and her abdomen was found distended with fluid and gas. Albuminuria was also noticed.

Operation by Dr. Curtis March 17, 1898. The peritoneum was found thickened, the bowels agglutinated, and much fluid was evacuated by breaking down adhesions. Miliary tubercles were seen in great numbers on loops of intestine and tuberculous elements were detected by Dr. Brooks, Post-Graduate Laboratory.

Iodoform-glycerin was put into abdomen and the latter sutured. Healing by primary union. General condition much improved after operation. Discharged in good condition, and lost sight of a year ago.

CASE XIII.—Frank O., three years old, admitted August 23, 1898. Weight, twenty-three pounds; temperature, 100.2° (irregular fever); pulse, 120; respiration, 28.

The child was sick, three months before admission into the hospital, with cough, distended abdomen, and alternating constipation and diarrhea. Bilateral bronchopneumonia; abdomen painful on palpation—contains fluid.

Operation by Dr. Lloyd. Discharged (unimproved); operation wound healed; general tuberculous infection; case lost sight of.

Résumé—The diagnosis of tuberculous peritonitis is based upon the abdominal symptoms, such as distension, pain and disturbed bowel action, presence of fluid and loss of weight, and is made by exclusion, except in those cases in which the tubercle bacilli are found and then the diagnosis is positive. A febrile rise of temperature of an irregular type was found in all cases under careful observation. There is nothing characteristic about the temperature curve.

Cases of chronic non-tuberculous serous peritonitis present usually the features of an ordinary ascites, the abdominal fluid being free, whereas it is usually not free in the tuberculous variety. It is rare to find the tubercle bacilli by microscopic examination of puncture fluid. In doubtful cases the opening of the abdomen is indicated and will do no harm. Paroxysmal pain in the abdomen in children, in the absence of chronic appendicitis or abdominal fluid, is not indicative of tubercular disease and is frequently overcome by dieting and attention to and irrigation of bowels. (Worms, intestinal indigestion, membranous enteritis, etc.)

The tuberculin test was employed in Cases I and V; in the former with positive and in the latter case with negative result. I am unwilling to make a routine test with tuberculin in human beings in the present unsatisfactory state of our knowledge of its action.

To the three varieties of tuberculous peritonitis hitherto formulated by various observers:

1. Chronic tuberculous ascites (miliary form);
 2. Fibro-caseous tuberculous peritonitis;
 3. Fibro-adhesive tuberculous peritonitis,
- must be classed a fourth variety.

4. Tuberculous peritoneal tumors.

Two such tumor cases have been seen by me. Israel* reports one and there may be others on record which have not come to my notice.

* "Geschwulst artige Tuberculose des Colon ascendens." *Deutsche med. Woch.* No. 1. 1896.

The infection of the peritoneum can come about by way of the circulation or from the gastroenteric or genitourinary tract. Only one of the children here reported upon had a tuberculous parent (mother), Case VII, and it is not too far-fetched to assume that milk and meat of tuberculous animals are a frequent source of infection.

The cases here reported show the futility of medicinal treatment (most cases having been so treated before operation); and where some form of medication is followed by improvement or cure, one must not forget that spontaneous cures have also been reported and observed in cases presenting all the clinical evidences of the disease. Tuberculin and serum preparations were not exhibited as therapeutic agents.

Finally, the indication is early operation, which is no doubt of very great benefit to the patient when the tuberculous process is limited to the peritoneum. As regards the establishment of a complete cure, I am somewhat sceptical, because of the persistence of mild abdominal symptoms, of irritative catarrh or inflammation in bronchi, lungs and pleuræ, and intestines, in a number of cases which remained under my observation two years after operation. If at the time of operation we have co-existing tuberculosis of the lung or pleura, the ultimate results are unsatisfactory, although some improvement usually takes place for the time being.

DISCUSSION.

DR. FRUITNIGHT.—I would like to report a case, not in the person of a child, but still it is germane to the question both because it is unusual and interesting. The patient, a young woman of twenty, now under my care, presented herself with an ulcer on her hand, which was found on examination to be tuberculous, and on further examination it was found also that there was evidence of tuberculosis in the lungs, and furthermore there was also present tuberculous peritonitis. The ulcer on the hand was noticed, she says, in the shape of a little, hard swelling or lump. Unfortunately, the physician who first saw her, poulticed it and brought on suppuration and then incised it, and so possibly spread the infection through the system. The proper thing, it seems to me, would have been to have excised it, and then the general infection might have been prevented. The patient, when she consulted me, said she had had a more severe peritonitis, but it had improved under treatment. She

had been ill a number of months and had all the symptoms of tuberculous autoinfection. I agree with the reader of the paper as to the great value of early operation, having seen good results in the Children's Hospital of St. John's Guild, New York, but I do not believe the recovery will be permanent.

DR. ROTCH.—The subject of tuberculosis in infancy and early childhood is one of the most important we have to deal with, next to infant feeding. It has become more and more important every year. Out of some two hundred autopsies, where young children and infants had died from diphtheria, tuberculosis in some part of the body was found in seventeen or eighteen cases. The question of tuberculosis is exceedingly important to us who are paying especial attention to pediatrics.

In tuberculous peritonitis, what has seemed to me especially important is first the diagnosis between primary peritonitis in the sense that it originates in the abdomen, and tuberculous peritonitis that is secondary to tuberculosis elsewhere. For instance, a large number of cases of tuberculosis of the lung is associated with tuberculosis elsewhere, especially in the abdominal organs. The treatment of tuberculous peritonitis that is secondary to disease of the lungs is almost useless. When the tuberculosis of the peritoneum is primary, laparotomy is without question the proper treatment of the disease. We have had quite a wide experience with tubercular peritonitis, and the treatment is invariably laparotomy. We have never had any bad results from laparotomy. A very large number of cases, according to the class of cases we are dealing with, are not only benefited but are cured. I am possibly a little more optimistic than the last speaker as to the curative action of laparotomy. We do not know why, but we do know that we open the abdomen in a certain class of cases and they get well. I have followed the cases for years afterward and am sure that they recovered absolutely. That is true especially in one case where a boy who had tubercular peritonitis had been fed very largely the milk from a cow that on autopsy was found to be tubercular. The boy was cured by laparotomy and is perfectly well to-day. This brings up the question of what cases to operate upon. When there is primary tuberculosis of the peritoneum, we should operate; when the peritonitis is secondary the result is not so good. The cases that have been most benefited, in my experience, are those with effusion. They are the cases that almost surely get well. Secondarily we should operate where there is no effusion and there are simply tubercular masses or tumors, such as the reader of the paper has described. Laparotomy, it seems to me, is safer almost than giving castor oil. I say that only in a general way, because so much damage is done by laxatives. Surgeons should not hesitate to perform laparotomy. Then a large num-

ber of cases with effusion, which have been diagnosticated as non-tubercular, have really been tubercular, and the difficulty has been in not finding the tubercle bacillus. I have often in earlier days seen cases operated on where they did not find the tubercle bacilli, and so declared that the case was not tubercular. But I believe these cases were tubercular, because as the technique of finding the tubercle became more perfected, we have found them more frequently. We should never hesitate to operate in cases with obscure symptoms in the abdomen. Where the effusion has gone on the tubercular masses have broken down and the abdomen is full of pus, I have seen absolute recovery by laparotomy and washing out the abdomen. In those cases the bacilli were found. As we are finding tuberculosis to be so much more frequent than formerly, the surgeons should be encouraged to operate. In the other cases, in which there is not effusion, the patients are benefited by laparotomy, and also they get well often without laparotomy. Where laparotomy has been refused I have seen the child get well when I was pretty certain of the diagnosis or had made the diagnosis as near as possible without exploration. When we have a small tumor in the abdomen I do not think we have a right to take it for granted that it is not tuberculous. I was very much struck with that in the case of a child of a surgeon in Boston, who is especially skilful in detecting tumors by palpation. He thought he detected an enlarged mesenteric node, and I unhesitatingly told him to have a laparotomy performed because we do not know how soon the mesenteric node when infected may cause further infection. As exploratory laparotomy is essentially harmless, it seems to me it should be performed in these cases. In this case a large tuberculous mass was found, tubercle bacilli were present, and a tumor was removed. That child's life, I believe, was saved, for in all probability it would have had secondary infection. What we want to do is to operate before secondary infection takes place. Another form of tuberculous peritonitis is where it is a secondary infection. These cases are, *per se*, cases of tubercular disease. As to the use of tuberculin, I have considerable faith in its use for diagnosis. The number of men opposed to the use of tuberculin would lead me to consider it as yet *sub judice* in treatment. But for diagnosis I would use it. What you need in the tests with tuberculin is a low range of temperature. When the temperature is 102° or 103° the result is not so good with tuberculin in diagnosis. When the temperature is low the diagnostic use of tuberculin is valuable and it does no harm.

DR. COTTON.—I fully agree with Dr. Rotch in the importance of tuberculosis as perhaps paramount to that of almost any other disorder in infancy and childhood. I am very glad I heard Dr. Caillé's paper, because I realize the extreme difficulty of making

a diagnosis in cases of suspected tubercular peritonitis, without tubercles, without nodules, possibly with effusion. I would like to submit a question to the Society. If I understood Dr. Caillé, he based his diagnosis sometimes upon an examination of the ascitic fluid. In my own experience that has been negative, even under control experiments. I have now two cases under observation. One, in which I strongly suspect tubercular peritonitis, has been shown a number of times in my clinic. But, as is often the case, in the absence of pain and tenderness, which is rarely the rule in my experience in these cases, there are no positive diagnostic symptoms. I am driven to the bacteriological findings for a diagnosis, but they often prove to be negative, and yet there is the ascites, and there is the tumor, and there is the tendency to emaciation. Now, the question I would like to ask is: How far we are justified in exploratory laparotomy for diagnostic purposes in these cases. I would like to be reinforced in my inclination to insist upon exploratory laparotomy for the purpose of clearing up the diagnosis.

DR. ROTCH.—I do not see why we should not make an exploratory laparotomy in all cases. I would perform it and snip off a little piece of the suspicious tissue, and not examine only the fluid.

DR. JACKSON.—I would like to draw attention to one point in the diagnosis in these cases, and that is the absence of leucocytosis. Of course that will not separate the cases from typhoid fever, but it is an important point in making a diagnosis from ordinary peritonitis.

THE PRESIDENT.—In mentioning these tumors, due to tuberculosis of the peritoneum and enlarged mesenteric lymph nodes, a very important and large variety of tumor cases has been omitted, and that is the sarcomata, which should always be thought of in the presence of a tumor when making a diagnosis of tubercular peritonitis.

DR. CAILLÉ.—Tuberculosis and malaria seem to me to be the most important diseases just now, and the nearer we approach the time when tuberculosis will be curable the more I become interested in it. All observations on tuberculosis are worth reporting, and it was with that idea I reported my cases of tubercular peritonitis. I am convinced medicinal treatment in these cases is of no avail; it is not worth while wasting time on guaiacol, creosote and those things. I have tried them carefully and faithfully for a long time on a number of cases, and valuable time is wasted, so that the opening of the abdomen becomes of no importance afterwards.

Now, as regards the diagnosis, I fully agree with Dr. Cotton that we cannot make it, possibly, unless we find the tubercle

bacillus, and that very often is not found. It is claimed that by making a culture from the fluid you will get the tubercle bacillus, if it is there; but at any rate the laboratory men frequently report "no tubercle bacilli found"; and still when we open the abdomen we find tuberculosis. If we suspect the disease and are in doubt, then it is our absolute duty to open the abdomen. You may have a fluid due to chronic malarial infection and an enlarged spleen, or you may have fluid in the abdomen due to cirrhosis of the liver, and other anemic conditions may cause fluid, such as nephritis and valvular heart disease. If you cannot make a diagnosis otherwise, the opening of the abdomen is harmless; it does not put the patient in danger; it is done under an anesthetic, and I think we are derelict in our duty if we do not order it done, for it will absolutely establish the diagnosis. Then, if you are in doubt, the opening of the abdomen is the correct proceeding. As to the value of leucocytosis, I will say leucocytosis may be present in chronic anemia or malaria, and it may aid us in diagnosis, but it is not positive of itself.

Intubation in Private Practice.—Dr. J. Trumpp (*Münchener medicinische Wochenschrift*) draws the following conclusions: (1) Every general practitioner should strive to acquaint himself thoroughly with the technique of intubation as well as tracheotomy. (2) Intubation is absolutely indicated when the patient is in immediate danger of suffocation and there is no time for tracheotomy to be performed; it should also be done when tracheotomy is refused. (3) In other instances the physician is justified in undertaking intubation at home and in urgent cases without the necessary preparations—(a) when the transportation of the patient to a hospital is impossible or refused; (b) when the relatives and friends are told the advantages and disadvantages of the bloodless and bloody operation, and decide in favor of intubation; (c) when means of travel are good and the physician can reach the bedside within an hour. (4) Intubation in private practice should not be undertaken too late, because with good resisting-powers the chances of recovery are better, and dangers all the smaller, the less the local process is advanced. (5) Inasmuch tracheotomy in private practice is more difficult to carry out than intubation, the endolaryngeal method should be performed when the foregoing circumstances are not fulfilled, and further, when the intubation remains useless, decubitus is suspected as the result of a continued intubation, or when in spite of every precaution the tube is frequently coughed up. (6) If tracheotomy becomes necessary, then, even in private practice, it should be performed when possible with a tube in position.—*Medical Record*. Vol. lvi., No. 26.

PANCREATIC DIGESTION OF CASEIN.*

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In the following experiments, which were devised for the purpose of studying certain phases of the pancreatic digestion of casein, I used rabbits' pancreatic juice obtained by the method I have elsewhere described.† Pancreatic juice, thus obtained, was collected in a common receptacle and afterward equally divided between the digestion tubes of an experiment, so that each tube might contain an equal quantity of pancreatic juice of like digestive capacity.

The bile was also obtained from the rabbit and filtered before using. The milk employed was ordinary dairy milk, boiled and neutralized.

Each digestion tube of an experiment contained the same quantity of this milk, diluted either with an equal quantity of water or some other diluent, as detailed in the various experiments.

The digestion tubes were kept in a water bath, at a temperature of 38° C., for five or six hours, and their contents were stirred from time to time with glass rods especially prepared for the purpose. At the close of each experiment the undigested casein in each tube was coagulated by the addition of lactic acid and a saturated solution of ammonium sulphate. By filtration, in a warm chamber, this undigested casein was received on weighed and marked filter paper, which, after being thoroughly washed, was slowly dried and weighed at a temperature of 100° C. The amount of undigested casein in each tube was obtained by subtracting from the gross weight thus obtained the weight of the corresponding filter paper. Tube no. 1 of each experiment contained the same quantity of milk as the other tubes, but did not contain pancreatic juice or other ingredients which might change the casein. At the close of an experiment, therefore, tube no. 1 contained unchanged casein which, when coagulated, was used to determine the amount of casein each tube contained at the beginning of the experiment. The amount of casein which had been converted into peptones in each tube was obtained by subtracting from the amount of

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

† *American Journal of Physiology*. Vol. ii., No. 5.

casein in tube no. 1 the amount of undigested casein in each of the subsequent tubes.

It will be noted that 15 cubic centimetres of the different specimens of milk used in the various experiments, did not always contain the same amount of casein, and it is for this reason that the corresponding tubes of different experiments cannot be compared with one another. The comparative accuracy, however, of the deductions drawn from a comparison of the various tubes of an experiment is assured by the fact that the same quantity of the same milk was used in each tube of an experiment.

The maltose solution used in these experiments was prepared by subjecting a mixture of water and one of the Liebig foods to the action of a diastase for one hour. At the end of this time, the diastatic ferment was destroyed by boiling and the maltose solution filtered through ordinary filter paper.

By the above method the following experiments were made:

EXPERIMENT 1.—TIME, 6 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c. Water, 15 c.c.	o	o	1.174	o	1
Milk, 15 c.c. Water, 15 c.c.	m. 6	o	.620	.554	2
Milk, 15 c.c. Water, 15 c.c.	m. 6	o	.640	.534	3
Milk, 15 c.c. Water, 15 c.c.	m. 6	m. 12	.593	.581	4
Milk, 15 c.c. Water, 15 c.c.	m. 6	m. 12	.590	.584	5
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 6	m. 12	.580	.594	6
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 6	m. 12	.584	.590	7
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. 1	m. 6	m. 12	.607	.567	8
Milk, 15 c.c. .... .4 per cent. Sol. Sodium Carbonate, 15 c.c.	m. 6	o	.532	.642	9
Milk, 15 c.c. .... .8 per cent. Sol. Sodium Carbonate, 15 c.c.	m. 6	o	.521	.653	10
Milk, 15 c.c. Lime Water, 15 c.c.	m. 6	o	.522	.652	11

EXPERIMENT II.—TIME, 6 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c..... Water, 15 c.c.....	0	0	1.125	0	1
Milk, 15 c.c..... Water, 15 c.c.....	m. 5	0	.697	.428	2
Milk, 15 c.c..... Lime Water, 15 c.c.....	m. 5	0	.640	.485	3
Milk, 15 c.c..... Lime Water, 15 c.c.....	m. 5	m. 10	.583	.542	4
Milk, 15 c.c..... .4 per cent. Sol. Sodium Carbonate, 15 c.c.....	m. 5	0	.584	.541	5
Milk, 15 c.c..... .4 per cent. Sol. Sodium Carbonate, 15 c.c.....	m. 5	m. 10	.540	.585	6
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 5	m. 10	.598	.527	7
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 5	m. 10	.606	.519	8
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. 1.....	m. 5	m. 10	.660	.405	9
Milk, 15 c.c..... 2 per cent. Sol. of Milk Sugar, 15 c.c.....	m. 5	m. 10	.651	.474	10
Milk, 15 c.c..... Maltose Solution, 15 c.c.....	m. 5	m. 10	.690	.435	11
Milk, 15 c.c..... Maltose Solution, 15 c.c.....	m. 5	m. 10	.639	.486	12

EXPERIMENT III.—TIME, 5 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c. Water, 15 c.c.	o	o	1.039	o	1
Milk, 15 c.c. Water, 15 c.c.	m. 6	m. 8	.581	.458	2
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 6	m. 8	.531	.508	3
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. 1.....	m. 6	m. 8	.579	.460	4
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 6	m. 8	.495	.544	5
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. 1.....	m. 6	m. 8	.629	.410	6

EXPERIMENT IV.—TIME, 5 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c. Water, 15 c.c.	o	o	1.115	o	1
Milk, 15 c.c. Water, 15 c.c.	m. 10	o	.425	.690	2
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 10	o	.435	.680	3
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. 1.....	m. 10	o	.588	.527	4
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. $\frac{1}{2}$	m. 10	o	.518	.597	5
Milk, 15 c.c. Water, 15 c.c. HCl. Dilute, m. 1.....	m. 10	o	.596	.519	6
Milk, 15 c.c. .... .4 per cent. Sol. of Sodium Carbonate, 15 c.c.	m. 10	o	.418	.697	7

EXPERIMENT V.—TIME, 5 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c..... Water, 15 c.c.....	0	0	1.080	0	1
Milk, 15 c.c..... Water, 15 c.c.....	m. 8	m. 10	.570	.510	2
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	8 m.	m. 10	.510	.570	3
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	8 m.	m. 10	.482	.508	4
Milk, 15 c.c..... Lime Water, 15 c.c.....	m. 8	m. 10	.505	.575	5
Milk, 15 c.c..... 2 per cent. Sol. of Milk Sugar, 15 c.c.....	m. 8	m. 10	.551	.529	6

EXPERIMENT VI.—TIME, 7 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 20 c.c..... Water, 20 c.c.....	0	0	1.705	0	1
Milk, 20 c.c..... Water, 20 c.c.....	m. 8	m. 10	1.035	.670	2
Milk, 20 c.c..... Water, 20 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	.889	.816	3
Milk, 20 c.c..... Water, 20 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	1.005	.690	4
Milk, 20 c.c..... Maltose Solution, 20 c.c.....	m. 8	m. 10	.905	.790	5

EXPERIMENT VII.—TIME, 5 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c..... Water, 15 c.c.....	o	o	1.060	o	1
Milk, 15 c.c..... Water, 15 c.c.....	m. 8	m. 10	.640	.420	2
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	.579	.481	3
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	.560	.500	4
Milk, 15 c.c..... Lime Water, 15 c.c.....	m. 8	m. 10	.609	.451	5
Milk, 15 c.c..... Maltose Solution, 15 c.c.....	m. 8	m. 10	.639	.421	6

EXPERIMENT VIII.—TIME, 5 HOURS.

Contents of Tubes.	Panc. Juice.	Bile.	Undigested Casein.	Digested Casein.	Tube Numbers.
Milk, 15 c.c..... Water, 15 c.c.....	o	o	1.076	o	1
Milk, 15 c.c..... Water, 15 c.c.....	m. 8	m. 10	.569	.507	2
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	.536	.540	3
Milk, 15 c.c..... Water, 15 c.c..... HCl. Dilute, m. $\frac{1}{2}$	m. 8	m. 10	.529	.547	4
Milk, 15 c.c..... Lime Water, 15 c.c.....	m. 8	m. 10	.503	.573	5
Milk, 15 c.c..... Maltose Solution, 15 c.c.....	m. 8	m. 10	.556	.520	6

In order to facilitate the study of the questions involved in the above experiments, I have, by grouping the tubes bearing upon the same subject, made a number of tables which will now be considered under appropriate headings.

INFLUENCE OF MALTOSE ON THE PANCREATIC DIGESTION OF CASEIN.

TABLE I.

Contents of Tubes.	Panc. Juice.	Bile.	Amount of Casein Digested.
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.420
Milk, 15 c.c. + Maltose Sol., 15 c.c.	m. 8	m. 10	.421
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.507
Milk, 15 c.c. + Maltose Sol., 15 c.c.	m. 8	m. 10	.520
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.670
Milk, 15 c.c. + Maltose Sol., 15 c.c.	m. 8	m. 10	.792
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	.428
Milk, 15 c.c. + Maltose Sol., 15 c.c.	m. 5	m. 10	.435
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	.428
Milk, 15 c.c. + Maltose Sol., 15 c.c.	m. 5	m. 10	.486
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.510
Milk, 15 c.c. + Milk Sugar Sol., 15 c.c.	m. 8	m. 10	.529
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	.428
Milk, 15 c.c. + Milk Sugar Sol., 15 c.c.	m. 5	m. 10	.474

By a study of this table it will be noted that the pancreatic digestion of casein was in every instance slightly facilitated by the presence of a maltose solution, and that in experiments nos. 6 and 7 of this series, a milk sugar solution seemed to exercise the same favorable influence. The inference, therefore, from this table is that rabbits' pancreatic juice in the presence of bile is somewhat assisted in casein proteolysis by the presence of a maltose or milk sugar solution.

In a previous paper* I demonstrated the physiological fact that acid proteids, undergoing digestion, will slightly increase the diastatic action of rabbits' pancreatic juice. It would seem, therefore, from these observations that the inference may be drawn that both the diastatic and proteolytic action of rabbits' pancreatic juice goes on more rapidly when the juice is acting upon a mixture of starches and albumens, than when the juice is acting separately upon these food stuffs.

* *American Journal of Physiology.* Vol. ii., No. 5.

It must, however, be remembered that there are some difficulties in the way of applying these principles in the solution of the much discussed question of the value of gruels in infant feeding.

Jacobi has long taught that, in healthy children, milk digestion goes on more satisfactorily when it is mixed with a decoction of one of the cereals; and most of the recent writers upon the subject of children's feeding have come to agree with Jacobi, believing, as they do, that under the influence of these decoctions the rennet and hydrochloric acid of the stomach precipitate the casein in more flocculent clots, thus enabling the ferments to come in more intimate contact with the casein to be digested.* Whatever may be the explanation, however, I think we may possibly infer from the above experiments that the favorable influence of these cereal decoctions on casein digestion is continued even after the milk leaves the stomach and comes under the influence of the various digestive enzymes of pancreatic juice in the intestinal canal.

INFLUENCE OF LIME WATER ON THE PANCREATIC DIGESTION OF CASEIN.

TABLE II.

Contents of Tubes.	Panc. Juice.	Bile.	Amount of Casein Digested.
Milk, 15 c.c. + Water, 15 c.c.	m. 6	o	.554
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 6	o	.652
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	.428
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 5	o	.405
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	.428
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 5	m. 10	.542
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.510
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 8	m. 10	.575
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.420
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 8	m. 10	.451
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	.507
Milk, 15 c.c. + Lime Water, 15 c.c.	m. 8	m. 10	.573

A study of this table indicates that lime water slightly increases the proteolytic action of rabbits' pancreatic juice on casein. The important role which lime water has long played

* Chapin, ARCHIVES OF PEDIATRICS, December, 1899.

in the milk feeding of infants has given it, in certain conditions, an empirical value which cannot be doubted. It is perhaps true that the beneficial results which are obtained from the use of lime water, in the gastric digestion of milk, are in part due, as Dr. Chapin said in a paper before this Society last year, to the fact that the action of rennet is facilitated by the presence of the salts of lime. It also, however, has some value in neutralizing the acidity which has almost always developed in dairy milk before it has reached the dwelling houses in our large cities. And may it not also be possible that the beneficial influence of lime water on the pancreatic digestion of casein is exerted in somewhat the same way? That is to say, in the milk feeding of infants the lime water, by facilitating the flaky deposit of casein in the stomach, causes the casein to come into the presence of the pancreatic juice in a more suitable form for active proteolysis, and it may even be conceived that the lime salts themselves may reach the intestine, there to stimulate the pancreatic digestion of casein.

INFLUENCE OF SODIUM CARBONATE ON THE PANCREATIC DIGESTION OF CASEIN.

TABLE III.

Contents of Tubes.	Panc. Juice.	Bile.	Amount of Casein Digested.
Milk, 15 c.c.+Water, 15 c.c.....	m. 6	o	.554
Milk, 15 c.c.+ .4 per cent. Sod. Carb. Sol., 15 c.c.....	m. 6	o	.642
Milk, 15 c.c.+Water, 15 c.c.....	m. 5	m. 10	.428
Milk, 15 c.c.+ .4 per cent. Sod. Carb. Sol., 15 c.c.....	m. 5	o	.541
Milk, 15 c.c.+Water, 15 c.c.....	m. 5	m. 10	.428
Milk, 15 c.c.+ .4 per cent. Sod. Carb. Sol., 15 c.c.....	m. 5	m. 10	.585
Milk, 15 c.c.+Water, 15 c.c.....	m. 10	o	.690
Milk, 15 c.c.+ .4 per cent. Sod. Carb. Sol., 15 c.c.....	m. 10	o	.697
Milk, 15 c.c.+Water, 15 c.c.....	m. 6	o	.554
Milk, 15 c.c.+ .8 per cent. Sod. Carb Sol., 15 c.c.....	m.	o	.653

The study of this table shows that the presence of sodium carbonate greatly increases the proteolytic action of rabbits' pancreatic juice on casein. This physiological observation is of

importance because of the fact that sodium carbonate is a normal constituent of the succus entericus. One may infer, therefore, that the alkaline intestinal juice will facilitate the action of trypsin on casein. One cannot, however, say that the value of sodium carbonate in the milk feeding of children depends either wholly or partly upon this physiological fact, since it is quite impossible to see how sodium carbonate could pass through the acid contents of the stomach and reach the intestinal canal in a condition to facilitate the pancreatic digestion of casein. The good that comes from sodium carbonate in infant feeding is probably due to the fact that it neutralizes the fermentation acids which have been formed in the milk.

INFLUENCE OF COMBINED HYDROCHLORIC ACID ON THE PANCREATIC
DIGESTION OF CASEIN.

TABLE IV.

Contents of Tubes.	Panc. Juice.	Hydrochl. Acid Dilute.	Amount of Casein Digested.
Milk, 15 c.c. + Water, 15 c.c.	m. 10	0	.690
Milk, 15 c.c. + Water, 15 c.c.	m. 10	m. $\frac{1}{2}$	.680
Milk, 15 c.c. + Water, 15 c.c.	m. 10	0	.690
Milk, 15 c.c. + Water, 15 c.c.	m. 10	m. $\frac{1}{2}$	.597
Milk, 15 c.c. + Water, 15 c.c.	m. 10	0	.690
Milk, 15 c.c. + Water, 15 c.c.	m. 10	m. 1	.527
Milk, 15 c.c. + Water, 15 c.c.	m. 10	0	.690
Milk, 15 c.c. + Water, 15 c.c.	m. 10	m. 1	.519

The few experiments recorded in this table indicate that combined hydrochloric acid slightly retards the proteolytic action of trypsin on casein. The retarding influence, however, is not very great, with the amount of acid here used, considerable proteolysis being accomplished by the pancreatic juice when one minim of dilute hydrochloric acid was added to fifteen cubic centimetres of milk.

INFLUENCE OF BILE AND COMBINED HYDROCHLORIC ACID ON THE
PANCREATIC DIGESTION OF CASEIN.

TABLE V.

Contents of Tubes.	Panc. Juice.	Bile.	Hydrochl. Acid Dilute.	Amount of Casein Digested.
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	o	.581
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	m. $\frac{1}{2}$	.594
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	o	.581
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	m. $\frac{1}{2}$	.590
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	o	.428
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	m. $\frac{1}{2}$	.527
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	o	.428
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	m. $\frac{1}{2}$	.519
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	o	.458
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	m. $\frac{1}{2}$	.508
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	o	.458
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	m. $\frac{1}{2}$	.544
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.510
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.570
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.510
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.598
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.670
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.690
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.670
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.816
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.420
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.481
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.420
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.500
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.507
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.540
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	o	.507
Milk, 15 c.c. + Water, 15 c.c.	m. 8	m. 10	m. $\frac{1}{2}$	.547
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	o	.584
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 12	m. 1	.507
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	o	.428
Milk, 15 c.c. + Water, 15 c.c.	m. 5	m. 10	m. 1	.465
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	o	.458
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	m. 1	.460
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	o	.458
Milk, 15 c.c. + Water, 15 c.c.	m. 6	m. 8	m. 1	.410

If one refers to experiment no. 1 in connection with the study of this table, it is evident that bile not only neutralizes the retarding influence of combined hydrochloric acid on the pan-

creatic digestion of casein, but that by its presence it enables the pancreatic juice to do more work on acid casein than it could do on neutral casein, or on neutral casein mixed with bile. That is to say, bile assists the pancreatic juice in the digestion of casein, but it renders even greater assistance when the casein is partly saturated with hydrochloric acid. When, therefore, rabbits' bile and rabbits' pancreatic juice are brought in contact with acid casein, conditions are provided which favor the proteolytic action of trypsin on casein.

This table shows that the addition of a small percentage of hydrochloric acid almost invariably increases the proteolytic action of pancreatic juice upon casein, when the juice is acting in the presence of bile. And when one remembers that in the carnivora the duodenal contents are always acid, and that even in the herbivora a certain amount of hydrochloric acid is combined with the proteids as they are discharged from the stomach into the duodenum, and that the intestinal contents lose their acidity and become alkaline in their reaction, only after they have passed down some distance from the pylorus (in the carnivora a longer distance than in the herbivora), then one can see the force of the above physiological propositions in explaining the digestion of milk in the intestinal canal of all animals, including man. In the infant of the human species, for example, let us suppose that the milk, after being subjected in the stomach to the influence of rennet, hydrochloric acid and pepsin, is discharged, partially digested, through the pylorus, into the duodenum; the casein being either wholly or partly saturated with hydrochloric acid is brought at once under the influence of a mixture of bile and pancreatic juice, and these conditions, as we have demonstrated, being most favorable to the pancreatic digestion of casein, proteolysis will go on rapidly. As the casein passes down the intestinal canal, it presently finds itself in an alkaline medium, the combined hydrochloric acid being wholly neutralized by the sodium carbonate and other alkalies found in the intestinal juices. In this alkaline medium, as we demonstrated in table no. 3, the trypsin still finds itself under conditions most favorable to its action, and proteolysis thus continues under favorable influences throughout the intestinal canal.

That a small amount of combined hydrochloric acid will, in the presence of bile, actually assist the proteolytic action of pancreatic juice on casein, is a physiological fact which has some bearing on the feeding of sick infants.

Jacobi, in speaking of infant feeding, says: "In acute and debilitating diseases which furnish no, or little, hydrochloric acid in the gastric secretion, a small quantity of the latter, well diluted, must be provided for." This is but one of many expressions I find, noting the value of hydrochloric acid in the feeding of sick children. In recent years my own clinical experience has taught me that hydrochloric acid is one of the most valuable agents we have in the treatment of diseases marked by feeble digestion in infants. Hydrochloric acid is, I believe, of special value, as Jacobi says, in those cases where malnutrition is pronounced, and the hydrochloric acid of the gastric juice is for this reason deficient. I have found it of value, however, in almost all cases where there is deficient casein digestion, as manifested by curds in the stools. Casein dilution, as Rotch has so clearly demonstrated, is the rational treatment of this condition. Yet if we are to look to the proper nutrition of the infant, there is a limit to the amount of dilution which may be resorted to. In these cases I have often obtained the greatest benefit from the use of a pepsin hydrochloric acid solution. In my hospital wards I have used this mixture with great satisfaction in infants suffering from casein indigestion, due wholly or partly to a general malnutrition. These cases, as a rule, respond quickly to the acid, the curds diminish or disappear from the stool, and the infant is able to take and digest more milk. I wish, however, especially to note that the good effects of hydrochloric acid are not limited to these cases of malnutrition, but that it is also of real value in almost all cases of casein indigestion, whatever may be the cause, and whether the infant is being fed on breast milk, or some dilution of cow's milk.

In the light of the above experiments we can see that the beneficial action of hydrochloric acid is not confined to the stomach, but as combined hydrochloric acid it is continued in the intestinal canal, where it not only aids the pancreatic digestion of casein but also acts as an intestinal antiseptic. It is my belief that a small portion of hydrochloric acid combined with proteids will, under certain conditions, aid the action of the enzymes of pancreatic juice, while at the same time it exercises a restraining influence on fermentations carried on by organized ferments.

In closing this paper I wish to add a note on certain changes

which take place in the cream of milk when subjected to the combined influence of bile and pancreatic juice.

In the experiments above recorded I noted at the close of certain experiments, that free fat, or butter, was found floating on the surface of all those digestive mixtures, in which the milk had been subjected to the action of both bile and pancreatic juice. In other words, it was noted that the physiological emulsion of fats, as it occurs in milk, was partially destroyed by the combined action of bile and pancreatic juice, but that this emulsion was not destroyed by the action of either one of these agents when acting alone. This observation suggests the possibility that the emulsion of fats in milk is wholly or partially destroyed by the action of bile and pancreatic juice in the intestinal canal prior to their absorption. If it be true that the milk emulsion is destroyed in the intestinal canal, and the fats set free, we can readily understand how in certain diseases of the intestinal canal, which interfere with the absorption of foods, we may have, even in milk-fed infants, greasy or fatty stools.

I wish again in this paper, as I have in previous ones, to acknowledge the skilful assistance of Dr. F. A. Southgate. I am also indebted to Dr. Dudley Webb for valuable assistance.

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DISCUSSION.

DR. ROTCH.—I do not quite understand which Dr. Rachford considered the more valuable, lime water or the cereals, or how they compare.

DR. RACHFORD.—You can see by the table that the cereal has very little influence, but what influence it has is favorable. It has not as much influence as the lime water or as carbonate of soda, but it has no retarding action and in every instance there is a slight increase in proteolytic action.

DR. ROTCH.—I was wondering whether that would not be a reason for using the lime water for the proteolytic action, rather than the cereals, since whenever the cereals are used the amyolytic action has to be brought into play; and whether it is not better to use the lime water than the cereal, as there is so little difference between the two, the cereal giving an extra burden for the digestion of the infant.

DR. RACHFORD.—May I not ask Dr. Rotch whether he has ever seen greasy or fat stools?

DR. ROTCH.—Yes; there is often fat excreted beyond what is needed for nutrition. It seems to depend more upon the extra fat taken in the food and various other reasons of which we do not know. It does not seem to be an abnormal condition.

DR. CAILLÉ.—I was very much pleased to hear Dr. Rachford bring attention to hydrochloric acid in the aid of digestion. Ever since we have had investigation of the stomach contents I have administered hydrochloric acid, and of the few drugs I do give it is one of the few I prescribe daily. I know of no drug that compares with it. From a practical standpoint, therefore, it has been satisfactory to me, and the theoretical reasoning given by Dr. Rachford simply will aid us in understanding why it should be such a satisfactory addition to our pharmacopeia. Now there is one practical point in its administration upon which I would like to lay stress and that is this: In malnutrition or any digestive disturbance whatsoever, the coated tongue is an indication for the administration of hydrochloric acid, and then as soon as the tongue clears up, if any tonic is indicated you may stop the hydrochloric acid and give iron or something else. The coated tongue, therefore, is my indication for hydrochloric acid, and the clearing up of the tongue is my indication for stopping it.

DR. FRUITNIGHT.—I have used hydrochloric acid for a number of years, and where there are lumpy stools I use pepsin and hydrochloric acid. I usually administer them after the meal, sometimes before; they go into the stomach at the same time as the meal. After many years' use of hydrochloric acid I esteem it highly.

DR. BLACKADER.—I would like to ask Dr. Rachford whether fat is usually manifested in the stools in the form of greasy stools. In my own work I usually recognize as fat the light yellow masses resembling casein, which are soluble in ether, or mostly soluble. The fat in the stools giving the stools a greasy appearance I have very seldom seen. The fat, I have been taught, appears in the stools as flocculent masses. Is not it possible to recognize fat only by chemical examination?

DR. HOLT.—I must confess to have seen little benefit from the drugs that have been mentioned. I have come to the conclusion that the treatment is largely dietetic, and by stomach washing we can do more than by all other means combined. The findings in the stomach washing and the fact that the hydrochloric acid is diminished helps very little and is very uncertain. I think its use is purely empirical if we consider our clinical results, and I am inclined to question the specific effect we have given to it. The more I treat these cases the more I am convinced that drugs play a very small part. When we decide with what element of food the trouble is most concerned,

then by remedying that, and giving the children plenty of fresh air and good hygiene, we relieve them. The tendency of the general practitioner to dose these cases with hydrochloric acid and pepsin, and ignore the really important thing, seems to me to not give the best results. As a prominent or general principle of action, I must say I have my doubts about the efficacy of these drugs.

DR. MILLER.—I would just emphasize the remarks of the last speaker. I confess I believe the administration of hydrochloric acid either before or after the taking of food is not according to our studies in physiology. Hydrochloric acid I believe is not secreted just after the introduction of milk into the stomach. It seems to me better to wash out the stomach, or when the washing of the stomach is difficult and not easily resorted to, we may administer an alkali to dissolve away the mucus and allow digestion to go on normally, and that I believe is more in accordance with our ideas of therapeutics. I have tried hydrochloric acid in infants and I have, except in a few cases, been disappointed. Still I think we as a Society should not emphasize the use of drugs in a special way, but rather the broad principles, as just laid down by Dr. Holt.

DR. CAILLÉ.—Perhaps the difference in opinion in regard to the value of hydrochloric acid can be explained in this way: sometimes it does not give brilliant results in infants but it does give good results in children above the age of two. The small value ascribed to hydrochloric acid is probably because some have infants under two years in mind.

DR. ROTCH.—My experience has been, in the use of drugs and diet, that the diet is the prime factor in the problem, and the reducing of the proteids, to which Dr. Rachford has referred, is also valuable. When we are using the proteids of cow's milk it seems to me they are somewhat more nourishing than those of human milk and we can get along with a smaller quantity of cow's proteids than of human proteids. It is very seldom, in my judgment, that we will have to use any drug whatsoever.

THE PRESIDENT.—In closing the discussion I wish Dr. Rachford would give us in a few words the reason he did not use potassium carbonate, as has been suggested recently.

DR. RACHFORD.—This whole subject is a very difficult one, and it is especially difficult for a physician engaged in hard work with a busy practice to do, and so the investigation must be quite limited. It is a very tedious process, as it requires a good portion of a week with good assistants to make one of these experiments. The number of subjects experimented upon, therefore, must be limited. I chose sodium carbonate because I wanted to study the normal digestion in the infant if possible, that is, to study the influence the sodium carbonate in the

succus entericus may have on the infant digestion. The idea was to study the influence of rabbit pancreatic juice, and if possible to throw some light on the pancreatic digestion of casein. Whether this will help in children's feeding is another thing. I did not make the research to explain by any means all the things in connection with infant feeding, but I simply desired to shed some light upon the pancreatic digestion of casein.

The observation which I made in the last paragraph of the paper as to the influence which pancreatic juice and bile have on the emulsion of fats interested me, as I said, because it suggested that the emulsion was destroyed and the fats were absorbed in this form as fatty acids coming in contact with alkalies, just as other fats are absorbed, and that the fat probably is not absorbed in the form of an emulsion. I suggested that this might explain the presence of fat in the stools. Occasionally I have seen stools that to the naked eye did not appear as if they contained free fat, but they presented a greasy appearance. In the great mass of cases we may judge from the little yellow, creamy or butter-like masses that the stools are fatty, and then by dissolving out the fat with ether we may determine both the presence and the amount of fat in the stools. And so we often have fat in the stools in the form of butter-fat rather than of cream. The globules are not surrounded by the albuminous envelopes.

Dr. Holt observed that when hydrochloric acid was used it was entirely empirical, and the explanation of its value must be simply an empirical explanation. After making my experiments on the influence of bile and hydrochloric acid on casein, which experiments were devised for the purpose of studying the digestion of casein in the small intestine, I came to the conclusion that combined hydrochloric acid in the presence of bile actually increases the proteolytic action of pancreatic juice on casein. If that is true, and if these experiments are confirmed, then the use of hydrochloric acid in certain conditions will not be empirical, and we will have one reason for the use of hydrochloric acid which we have not had before. However, up to the present time the use of hydrochloric acid has been empirical. In certain conditions there is an absence of hydrochloric acid in the stomach—in cases of malnutrition. We know hydrochloric acid is present in the stomach for a purpose, and the clinical experience of men, who have had really very great clinical opportunities, leads them to believe that hydrochloric acid is of real value in the treatment of this class of cases. And so we may draw conclusions from this that would not be altogether empirical. The absence of hydrochloric acid from the stomach would call for the use of hydrochloric acid, and not entirely in an empirical way. We probably all agree with Dr. Holt that hydrochloric acid is not the most important thing in the treat-

ment of these cases; in fact, it is rather an unimportant thing. The washing out of the stomach and the dietetic treatment of the cases are more important, but here is an additional item in treatment. The use of hydrochloric acid is not to take the place of the other measures, which are really the ones most relied upon, such as cleanliness and proper food and those things referred to in our President's address. Dr. Blackader stated that hydrochloric acid is not indicated, given either before or after meals, because hydrochloric acid is not secreted immediately after the fluid is taken into the stomach. I do not see the force of that argument. Hydrochloric acid is found in the stomach half an hour after the introduction of food, and it is there for a purpose. When hydrochloric acid is absent from the stomach, then we have a reason for giving hydrochloric acid, whether before or during or after the meal. Hydrochloric acid deters the lactic and other fermentations, and there seems to be no reason for waiting half an hour or so to give hydrochloric acid just because it is not normally found until half an hour or so after the ingestion of food. The paper was not prepared for the purpose of extolling the virtue of hydrochloric acid, but to detail certain experiments which I hope will be of value in the treatment of sick children.

The Vagus in Relation to Malignant Forms and Complications of Measles.—Emilio Cioffi (*La Riforma Medica*) believes that the suffocating catarrh, pulmonary collapse, cough and pseudo-croup, vomiting, diarrhea, nausea, and sense of satiety, kidney symptoms, anuria, oliguria, edema with or without albuminuria, otitis, and meningeal inflammation, all met with in some cases of measles, are due to the effect of the specific toxins upon the pneumogastric nerve. He has reached these conclusions through laboratory experimentation.—*Medical Record*.

Rachitis and Suprarenal Extract.—Peculiar crystals have been found in the medulla of the bones of rachitic children treated with suprarenal extract by Stoeltzner and Salge (*Munch. med. Woch.*, January 9, 1900). They appeared as radially and concentrically striated globules or as thin needles when the sections had been preserved for some time in diluted alcohol. After evaporation of an aqueous solution, crystals similar to spermin were seen, but the exact chemical nature has not yet been settled.—*Medical News*.

Clinical Reports.

CASE OF A CHILD CRETIN WHERE THE EFFECTS OF THYROID TREATMENT UPON THE BODILY AND MENTAL CONDITION WERE REMARKABLY RAPID AND COMPLETE.

BY H. OLIPHANT NICHOLSON, M.B., CH.M.,

Physician to the New Town Dispensary, Edinburgh, Scotland.

The patient, Annie C., aged two years and eight months, to whom the following notes refer, was first seen by me on October 23, 1894, and readily recognized as a sporadic cretin from the characteristic physiognomy and appearance.

FAMILY HISTORY.—The patient is the second child, and has one brother, aged five years, who had convulsions in infancy but who is now a strong, healthy child, and one younger sister, who had convulsions during her teething period but who is now well developed and sturdy. No near relatives are known to be affected with cretinism, myxedema, or insanity, but the child's paternal grandmother is liable to attacks of "falling sickness," which developed late in life; otherwise the father's relatives are unusually healthy and robust. There is no consanguinity in the parents, who are well nourished and apparently normal young people. A history of alcoholic excess can also be excluded, and there is no probability of phthisical inheritance. The mother's health during her pregnancy was good, and she does not remember any fright or accident during that period, which terminated on February 29, 1892, in a perfectly natural labor and the birth of a fine, healthy infant. No miscarriages have occurred.

PERSONAL HISTORY.—The baby was put on the breast, and its life was uneventful for the first four months save for rather frequent attacks of diarrhea. It had no convulsions, or infectious diseases, or injury, and showed no signs which suggested that it was different from any other baby of the same age. Then it developed whooping-cough, which lasted till it was eight months old, and an attack of bronchitis supervened. On account of this and because it was noticed that the baby was now unable to suckle the breast properly, it was weaned, and

very shortly afterwards the first symptoms of something unusual were observed. The baby was now curiously "wizened," and instead of her former happy, cheerful disposition, she now appeared dull and stupid and always inclined to sleep. Matters gradually got worse and the abdomen was noticed to be getting larger, this being specially noted when the baby had been constipated for a day or two, as after an attack of diarrhea the swelling seemed less. The child seemed also fatter, used to bite her nails constantly, and had to be fed with a spoon, being unable to suck through the ordinary feeding bottle. The first incisor tooth did not appear till the eleventh month; the child showed no signs of intelligence, and from its general appearance the parents became reconciled to the fact that it was an imbecile. A doctor who saw the child when it was eighteen months old did not controvert this diagnosis and prescribed iron and cod-liver oil, with some slight temporary effect.

PRESENT CONDITION.—The child, aged two years and eight months when first seen by me, had all the characteristic symptoms of a cretin. (See Fig. 1.) She is twenty-six and one-half inches high, has a pale, swollen, myxedematous-looking face and body, a markedly curved back, and a pendulous abdomen. There is a very faint pink blush on her cheeks, the eyelids, nose and lips are puffy, the forehead protuberant and wrinkled, and the hair of the head scanty. The eyes, which are light blue in color, appear small on account of the swelling of the eyelids, and there is some ciliary blepharitis at times. For a year the tongue had been noticed to be getting larger and thicker, and now is sometimes protruded between the lips, which are rather bluish in color. The gums are thicker than usual, and all the incisor and canine teeth are present, and also the first upper and lower left molars; the right upper molar tooth can be felt beneath the gum. When the child attempts to speak it has a habit of putting the tongue inside its cheek, and when taking a drink the tongue is first protruded and the rim of the cup placed on its dorsum. Some measurements were taken of the head, which has a largely developed occiput and is dolichocephalic.

- (a) From root of nose to occipital protuberance, 11 inches.
- (b) Circumference of head, - - - 18 inches.
- (c) From ear to ear, - - - 12 inches.

The fontanelle is still very open, and is one and three-quarter inches in transverse diameter. The hair of the scalp is

scanty but is commencing to grow slightly, is very fair and not of coarse texture. There is no seborrhea or eczema or other eruption. The neck is nine inches in diameter, and by careful palpation no trace of the thyroid gland can be found; there are no definite supraclavicular, fatty swellings or pseudolipomata elsewhere. The thorax measures eighteen and one-half inches

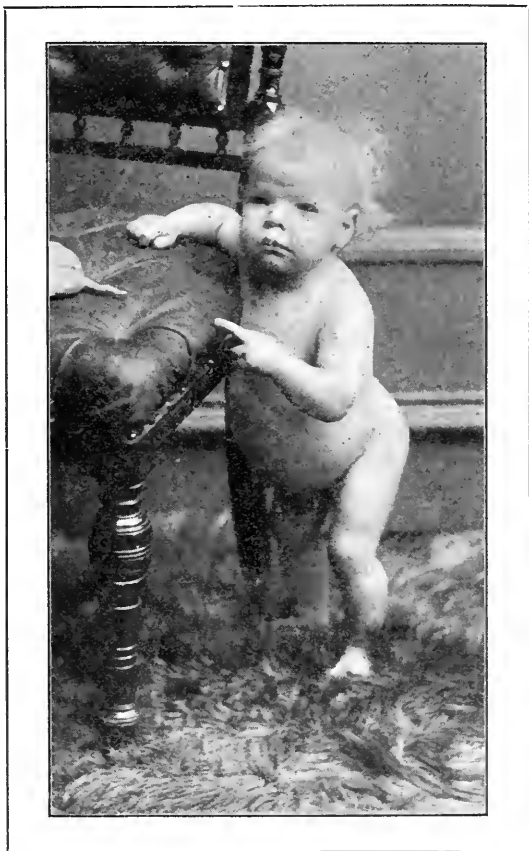


Fig. 1.

in circumference and shows no rickety formation. The heart sounds are feeble in character, and a soft blowing murmur accompanies the first sound. The radial pulse is exceedingly difficult to make out, owing to the puffiness of the tissues about the wrist, and partly to the small impulse of the heart-

beat; the rate is ninety-two per minute. The respiration is slow for a child of her age and there is always a slight catch in the breathing. The large, pendulous abdomen, which measures nineteen inches round the navel, where there is a small hernial protrusion, is otherwise normal. For a time the appetite was voracious, so much so that diabetes was suspected by the parents, especially as there was the accompaniment of great thirst. In taking food it is noticed that the tongue is first protruded and the food placed on the top of the organ. The baby is decidedly anemic, but its digestion seems good, though there are occasional symptoms of flatulence and the bowels are generally constipated. The liver and spleen are not enlarged, the urine is high colored and strong smelling. The limbs are of the usual short, puffy character and are eleven inches in length; the feet are of bluish color and of the thick anteroposterior type, but here also there are no signs of rickets. There is a pretty marked lordosis of the spinal column, but no unusual growth of hairs between the scapulæ. The harsh, dry, wrinkled skin is in marked contrast to the soft, velvety skin of the healthy infant, but no venous mottling is observed, and there are no nevi, warts, moles, or enlarged lymph nodes. The mother had noticed the entire absence of sweating, and also the unusual deficiency of the salivary secretion; the nasal and lachrymal secretions are scanty but not absent. The child cannot walk without support and drags her limbs slowly after her, showing a want of vigor in her motor powers, but the reflexes (superficial and deep), so far as can be tested, are normal. Skin sensibility is apparently unimpaired, and there is no noticeable deafness or serious defect in vision; the acuteness of taste and smell could not be satisfactorily tested. The temperature was found to be subnormal, and the child has a distinct liking for warmth, her hands and feet being constantly cold. Her vocabulary is confined to the naming of her father and mother as "mum," "mum," and "ah," "ah," and her wishes are wholly made evident by signs. When angry her cry is peculiarly pathetic, but she is easily consoled and is of a contented, happy nature. Her intelligence, in spite of her inability to speak, is not altogether deficient, as she recognizes common things and often understands what is said to her, but the bladder and rectum are still emptied involuntarily. She sleeps fairly well through the night, but only for half an hour or an hour during the day.

DIAGNOSIS.—With such a train of symptoms this case could be put down as a child cretin with absolute certainty, as the only two conditions at all resembling it—achondroplasia and Mongolian imbecility—could easily be eliminated.

PROGNOSIS.—In this case I felt justified in giving a very favorable opinion as to the rapid effects of treatment on the bodily condition, taking into consideration the child's age and the gradual onset of the symptoms toward the end of the first year of its life. It would have been unwise to promise too much in the way of mental improvement, though at this age one might reasonably hope for the normal development of the mental faculties, coincident with the regular supply of artificial thyroid secretion, and hence essentially normal physical conditions.

TREATMENT.—On the 29th of October, 1894, the child was photographed (see Fig. 1), and on the following day two and one-half grains of thyroid powder were given in the food, and also for the two following days, till rather troublesome diarrhea resulted, which was accompanied by some vomiting. As the child had had similar attacks during the previous eighteen months, the mother did not associate its occurrence with the treatment, but on November 2d one and one-quarter grains were given instead without bad effects and continued once daily for several weeks. As early as November 7th the mother noted that the child took less food and slept sounder, also that the motions were of more natural appearance. In addition, the size of the belly, arms and legs are diminishing, and the skin feels smoother and warmer. The child's movements are becoming more active, too, and she walks about less clumsily when led over the floor. The tongue is certainly less bulky and the hands markedly diminished in their anteroposterior diameter. On November 17th the radial pulse was distinctly felt; the heart is beating much more forcibly; the child sleeps much better; she continues to eat less; and her body weight is already considerably reduced.

On November 24th the expression of the face is more intelligent; puffiness of the eyelids and forehead is rapidly disappearing; flattening of the nose is much less marked; diaphoresis is noted and the amount of hemoglobin is evidently increasing. By November 30th the right upper first molar tooth had erupted, and the mental condition is steadily improv-

ing; the child now tries to make her wants known by sounds, and looks altogether more intelligent and natural. The child was again given daily doses of two and one-half grains of thyroid powder, which dose was continued throughout. Great improvement, both bodily and mental, proceeded rapidly and uninterruptedly, and the increased growth of the child was



Fig. 2.

very noticeable. In about three months' time very few traces of cretinism remained, and the child was able to walk about easily without assistance, and was making use of the short words and gestures of early childhood. The faint systolic bruit, before mentioned, was now undiscoverable. After four

months of the thyroid treatment the improvement seemed so complete that the second photograph was taken, and the likeness produced is that of a bright, happy, pretty child, to all appearances normal, both physically and mentally. (See Fig. 2.) The only point worthy of notice is that the lower limbs have not grown quite in proportion to the body. Till about the middle of July, 1895, the child continued to grow and develop mentally with her regular dose of thyroid, when she contracted measles of a most malignant type, and died on July 16th, after three days' illness.

REMARKS.—In this case I have no doubt that the child at birth was perfectly normal, with the functions of its thyroid gland unimpaired. Probably the attack of whooping-cough at four months, which was complicated by bronchitis, must be regarded as the exciting cause of the condition that followed. Unfortunately a *post-mortem* examination could not be obtained to confirm the opinion which one would reasonably hold, that the gland had undergone atrophy, with consequent abolition of its function, but why this particular gland should suffer is at present inexplicable. In several recorded cases, however, the first symptoms have been noticed after recovery from acute febrile diseases, and it is also reported after injury—a fall on the face—so that in these instances we may assume that atrophy of a previously healthy gland had occurred. The early age at which treatment was commenced would greatly determine the rapid amelioration of the symptoms, and the ultimate prognosis, as to complete recovery, had the child lived, would have been very favorable. When struck down by measles the child was partially comatose at first, and before death completely so. No treatment seemed to be of the least avail, and the younger sister died in a similar manner from the same disease, both children being completely overwhelmed by the initial virulence of the poison. Therefore one has no reason to suspect that the cured cretin child was specially susceptible to the infection or would be less likely to withstand its effects.

Clinical Memoranda.

ACUTE GLANDULAR FEVER.*

BY W. F. BOGGESE, M.D.,

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etc., Louisville, Ky.

My reason for the selection of this subject for a paper before this Society is that I may elicit the opinions and experiences of my confreres as regards the clinical pictures and pathological entity of such a malady. That there is ever in infancy and early childhood a peculiar vulnerability of the lymphatic lymph nodes, is a daily experience with every practitioner.

Take for example the tubercular (or so-called scrofulous) enlargements of the lymph nodes. Whatever tissue offers the lowest vitality, and the least resistive power, is the farthest below par. There you find the proper habitat for the growth and development of the tubercle bacillus. Hence in early life we find the lymph nodes most affected; next in frequency the synovial membranes and the bones, giving rise to the so-called white swelling and Pott's disease.

Next in frequency we find the meninges showing the most vulnerability, giving rise to that dreadful malady, tuberculous meningitis.

Besides these tubercular enlargements and diseases of the lymph nodes, we find a simple hyperplasia, chronic if you choose to call it, a lymphadenitis, producing in children that peculiar condition which some authors are pleased to term a lymphadenomatous or lymphomatous diathesis.

Then, too, we see the enlargements of the lymph nodes in many of the infectious diseases, especially the exanthemata, diphtheria, scarlet fever, measles, chicken pox, etc. In addition to all these we meet another clinical feature of these enlargements in infancy and early childhood, acute in character, which presents a sufficiently distinct clinical symptomatology to lead us to the opinion that we have in it another pathological entity.

Such a condition was first described by Pfeiffer in 1889, and termed acute glandular fever. He defines the condition as an acute febrile disease attended with painful enlargements of

* Read before the Louisville Clinical Society.

the lymph nodes, an adenitis due to a specific infection. This is accompanied by a certain line of symptoms: fever, pain in joints, enlargement of liver and spleen, sometimes gastrointestinal symptoms, nausea, loss of appetite, etc.

The principal lymph nodes involved are those behind the upper end of the sternocleidomastoid muscles and the posterior border of these muscles, the post-cervical group, occurring in children from two to seven years of age. For years before Pfeiffer's article, clinicians had observed this line of symptoms and lesions and had attributed them to various causes, giving to the conditions such names as "Idiopathic lymphangitis," abortive infections, as of scarlet fever, diphtheria, etc. Some would identify the mildest cases with the febriculæ of the older writers. Some authors considered it one of the manifold and myriad varieties of the influenzal infection. In fact the majority of careful observers accept the view as to its being of influenzal origin.

The peculiar localization of the nodular enlargements, posterior to and beneath the sternocleidomastoid muscle, is difficult to explain and is the principal factor in turning the professional mind to a consideration of its being a distinct clinical infection, for similar involvements of the lymph nodes do not occur in other infectious diseases attended with lesions of the throat and nose, such as the diphtheria, scarlet fever, chicken pox, follicular tonsillitis and tuberculosis, etc.

The pathology seems to be a simple acute lymphadenitis with but little involvement of the peri-nodular structure, although a few cases of peri-adenitis have been reported.

ETIOLOGY.—It is a disease of early childhood. Pfeiffer gives the limit of age from three to eight years, but I will report cases at two and twenty-three years of age. Seasons seem to exert an important influence. It is seen generally in the cold months of the year, when exposure to cold occurs, as in la grippe. It occurs after infectious fevers. The occurrence of house epidemics has been frequently observed. J. P. West described an epidemic which involved quite a large area in the country.

SYMPTOMS.—The child is generally taken suddenly ill; headache, pains with stiffness in neck, some pain on swallowing, pain in the back and limbs. Prodrome is generally absent, though some authors have described cases in which a prodromal

stage has occurred. The symptoms are generally ushered in with chill and rigor. Temperature 102° F. to 103° F., pulse rapid, respiration quickened. Face flushed but no rash; sometimes vomiting occurs in place of initial chill and rigor.

On second or third day enlargements of the lymph nodes are noticed behind angle of jaw and extending along and beneath the sternocleidomastoid muscle. This is generally first noticed on left side and after a short time the right side is involved. On palpation you will find three or four lymph nodes in this region involved. Other cervical and the axillary and inguinal lymph nodes may be affected. These enlargements often produce pain and may be tender upon pressure. Pain in abdomen is often present and in a majority of cases the mesenteric lymph nodes are enlarged, giving rise to gastrointestinal symptoms. There is a varying degree of angina, from simple redness to marked ulceration, and with pseudomembrane. Spleen and liver always enlarged. During acute stages the child, as a rule, holds its head to one side and cries when attempts at rotation or movement towards the other side are made. Catarrhal and suppurative otitis media have been observed. Gastrointestinal symptoms are rarely severe but constantly present. Occasional skin eruptions have been observed. In one case a desquamative erythema was noted by me.

DIAGNOSIS.—As described by Stengel:—When this peculiar nodular tumefaction, the enlargement of the posterior cervical lymph nodes, first on one side then on the other, speedily follows an acute fever of irregular type, without marked local disease of mucous membrane of throat, and independent of recognizable infection, more or less epidemicity, the diagnosis is well-nigh absolute.

Prognosis good. As a rule recovery takes place in a few days, or the duration may be protracted owing to anemia and general depression.

TREATMENT.—This should be in putting child to bed and careful nursing. Local application to the neck of belladonna and ichthyol; calomel to unload the bowels, followed by intestinal antiseptics, salol, naphtholin, dermatol; and the use of tonics and reconstructives, as cod-liver oil, etc.

My reason for writing this paper was that within the past month I have seen two families in which this affection has occurred; in one three children gave a typical picture, *viz.*:

high fever, chills, pain in the back, an irregular type of fever, and other symptoms which I have attempted to describe. About the second day in each case the lymph nodes of the left side became involved, and a day or two afterwards the lymph nodes on the opposite side were found enlarged, and all the enlargements were posterior to the sternocleidomastoid muscle. These lymph nodes do not ordinarily suppurate; they did not in my cases. The enlargements disappear in from ten days to two weeks.

In another family the mother and two children were similarly affected, the youngest child being taken sick first. Two or three enlarged lymph nodes were first noticed behind the sternocleidomastoid muscle on the left side, the right side becoming involved a few days later. The other child was next affected, giving a typical history, then a few days later the mother.

I think in this condition we do have a distinct disease, possibly a specific infection, and I have read this simple report that I might elicit from the general practitioners and throat men present their experience, whether they have noted these enlargements with slight angina, especially enlarged lymph nodes such as I have described, without any specific lesion of the throat.

DISCUSSION.

DR. S. G. DABNEY.—Speaking from the standpoint of a man who sees throat troubles: We see a great many enlarged lymph nodes connected with throat diseases. I believe slight infection of the throat, particularly of the tonsillar tissues, is a common cause of enlarged lymph nodes of the neck.

DR. WM. CHEATHAM.—Infection of the liver and spleen may also come through the lymphoid structure of the intestinal tract. Tonsillar tissue is not confined to the throat, as a similar tissue is found also in the intestinal tract and larynx. The cases described by the reader of the paper look to me like enlarged lymph nodes resulting from influenza or acute rheumatism, or a mild infection from scarlet fever. It looks reasonable that infection may come through the tonsillar tissue. I think the treatment could be improved upon. I would give the salicylates after the calomel.

DR. T. P. SATTERWHITE.—I do not know that my attention has ever been called to the specific character of this trouble. Every physician has seen enlargement of the lymph nodes due to disturbances of the lymphatic system and very often accompanied with fever. They may be located posterior to the sternocleidomastoid muscle or anterior to it. Where there is fever accompanying these nodular enlargements, I have simply diagnosed a lymphatic disturbance generally, and have never found anything equal to a calomel purge twice a week, or every third day. In the School of Reform, which is under my charge, probably one-fifth of the children have more or less enlargement of the lymph nodes, and by this treatment twice a week, with a regulated diet of plain, nutritious food well cooked, they have gotten along reasonably well.

DR. J. W. IRWIN.—As I understand it this fever seems to depend upon an enlarged condition of the lymph nodes, some tonsillar disorder, some abdominal disturbance, with sometimes aches and pains. The description of the cases would lead me to suppose that there was some sort of systemic infection, as we know the lymph nodes are the custom house officers which prevent introduction of septic matter to the system, these lymph nodes even suppurate and destroy themselves in their effort to prevent infection of the system.

I have seen several cases of the kind referred to by the English where the lymph nodes posterior to the sternocleidomastoid muscle were enlarged, also those in the axilla, the cervical lymph nodes, etc.; I have seen the inguinal lymph nodes involved, and I can recall a case where the lymph nodes were enlarged all over the body. Of course I have no reference to Hodgkin's disease, but an acute enlargement owing to some disease of the throat, about the tonsils, or of the scalp. If there is a sore on the head, or in the ear, those lymph nodes will be enlarged. I invariably look for some disease of the ear or of the scalp when I find those nodes enlarged. And I agree with the previous speakers when I say that many of those troubles are simply expressions of the systemic infection associated with disorders of the tonsils.

We frequently see nodular enlargements the result of rheumatism or gouty rheumatism, and I believe the specialists will tell us that almost all of these disorders have as a basis the rheumatic diathesis. Therefore it is not surprising that the dis-

turbance which is going on in the system should cause the lymph nodes to show infiltration. It would be surprising if we did not have septic fever. The serous membranes about the joints and also the fibrous membranes are often involved.

The essayist has introduced an interesting subject for discussion, a condition resulting from general infection which we frequently encounter. We see so many enlargements of the lymph nodes due to infection of the general system that we cannot regard the disease referred to as due to other than simply sepsis. Just why the lymph nodes posterior to the sternocleidomastoid muscles are sometimes alone involved I cannot explain, nor can I explain why those in front are not involved. We occasionally find the supra-clavicular lymph nodes involved, and they sometimes go on to suppuration. I know that enlargement of those lymph nodes is not uncommon in other systemic conditions. I have seen several cases in young girls approaching the age of puberty, when they should have menstruated—some have passed the regular time—who had enlarged lymph nodes. In those cases I have seen the lymph nodes all over the body enlarged, I have seen hectic fever, the temperature reaching 103° F., and have seen the fever of an intermittent and remittent type. I can recall at least fifty such cases, and I am satisfied some of them died by reason of a form of sepsis. On the other hand I have found that judicious treatment carried out persistently often saved lives. In conditions of this kind I have been in the habit for the last fifteen years of administering bichlorid of mercury. I have given this drug in $\frac{1}{30}$ th grain doses to children three or four times daily. I have ordered the richest diet the stomach would tolerate. I have advised exercise in the open air, notwithstanding the temperature might be 101° to 103° F.

I believe the cases the essayist has referred to, if the histories could be properly traced, would be found to depend upon the rheumatic diathesis. I have found that saline laxatives are useful in the treatment. The salicylates may be given in moderate doses with benefit but no active treatment is required beyond keeping the bowels open with salines. The disease usually runs its course in from five to eleven days.

DR. P. F. BARBOUR.—I do not believe acute glandular fever has any connection whatsoever with scrofula or struma so-called. It is a peculiar condition which was first described in

1889. The first time my attention was called to it was in a typical case in a child five years of age which came to my clinic with enlargement of the lymph nodes in the right side of the neck. It was so unlike any other case of scrofulous lymph nodes or so-called lymphatism, presenting none of the strumous symptoms, that I was at a loss to recognize what the nature of the trouble was, and it was only after I had seen a second case which occurred in a sister of this child that I was led to make a diagnosis of acute glandular fever. These two cases are the only ones I have seen. That it is such a rare form of trouble goes to show that it is not due to rheumatism or influenza. Both rheumatism and influenza are often seen in children, while acute glandular fever is rare.

As to the location of the infection: While it is possible that infection takes place through the tonsil, it is rather unusual for tonsillar trouble or any infection located in the throat especially as far forward as the tonsil to affect the lymph nodes posterior to the sternocleidomastoid muscle, because those lymph nodes drain, as a rule, from the posterior part of the head and middle cavity of the ear; they do not drain from the tonsils nor the pharynx. If infection takes place through the tonsils the anterior rather than the posterior lymph nodes would be involved. Therefore we should infer that the infection must be of specific character. That the spleen and liver are both enlarged also indicates a specific infection.

DR. W. F. BOGGESS.—After studying the cases referred to thoroughly, I came to the conclusion that they were typical cases of acute infection, where the enlarged lymph nodes were only one of many symptoms of an acute infective trouble. This is further borne out by the fact that it occurs in families and in houses, epidemics sometimes covering considerable territory.

Very little investigation of the subject has been made. Up to the last few years all enlargements of the lymph nodes were attributed to the so-called scrofulous diathesis, or acute or chronic tuberculosis; but this is an acute infectious disease, because it comes on with an initial chill, fever, and two or three days afterwards the glands become enlarged, the liver and spleen always being enlarged, as we see in almost all other infectious troubles. It may be due to rheumatism, and acute articular rheumatism is now looked upon as an acute infectious

disease just as much as are typhoid and scarlet fevers. We often see pleurisy following influenzal infection. I have five or six cases in hospital and private practice where examination has shown numbers of the influenzal bacilli in specimens of pleurisy. We find empyema due to influenzal infection, so why should not influenzal infection affect the lymph nodes rather than the bronchial mucous membrane and pulmonary tissue? Yet I do not believe that this line of symptoms and the morbid conditions are due either to the rheumatic or influenzal infection.

Acute glandular fever runs a typical course; it clears up without suppuration of the lymph nodes: it is practically self-limited; it leaves few sequelæ. That there is such a disease giving a pathological entity I firmly believe.

Hysterical Skin Affections.—Rasch reports an instance of factitious dermatitis with gangrene in a girl aged eighteen years (*Dermatol. Centralblatt*), which on close investigations turned out to have been caused by application of cantharides. Some lesions were followed by scar keloid. From the literature he gathers many instances of supposedly hysterical gangrene, etc., which subsequent investigation showed to be self-inflicted injuries, and he believes that in general an artificial origin cannot with certainty be excluded in these peculiar cases.—*Medical Record*. Vol. lvi., No. 20.

Paralysis in Whooping-Cough.—An inquiry into this condition has been carried on by Homind, and published in the *Thèse de Paris*, 1899. Paralysis in whooping-cough is not frequent, and appears usually in severe cases occurring in young children. He divides them into three classes: (1) Paralysis of cerebral origin; the most frequent, about 40 per cent. These may assume the form of coma or of apoplexy, and may be of the hemiplegic type. Epilepsy may follow as a complication, or aphasia. In rare cases the special senses may be affected, giving rise to hemianopsia or blindness. (2) Bulbar paralysis. Sometimes there is a simple paraplegia, and sometimes the picture resembles Friedreich's or disseminated sclerosis. (3) Paralysis of peripheral origin. A few cases of this form are known. These paralyzes may be traced to two causes, infection and vascular strain.—*The Canadian Practitioner and Review*. Vol. xxiv., No. 12.

Clinical Note.

REMARKS UPON THE TREATMENT OF WHOOPING-COUGH.

BY FRANCIS HUBER, M.D.,
New York.

In an article by Norton, "Treatment of Whooping-Cough Without Drugs," (ARCHIVES OF PEDIATRICS, April, 1900), two methods, not in general use, are presented for the relief of the disease.

The employment of nascent carbonic acid gas, rather than the use of the manufactured product in tanks, is recommended, and seems to have exerted a favorable influence. Though the writer has not had any personal experience with either method, he has, however, done a great number of intubations. Several serious objections may be offered against intubation in just the class of cases in which the procedure is advised, in the severe form of pertussis attended with frequent and repeated spells of vomiting, with consequent loss of flesh and strength.

In the hands of one fairly expert, intubation is a simple operation. Unfortunately practitioners do not perfect themselves in the necessary technique.

The spasm of the glottis, so distressing in this disease, may be relieved by intubation, the paroxysmal expiratory cough, however, does not seem to be materially influenced.

Some fifteen years ago, a child of five years, affected with whooping-cough, developed membranous croup. The stenosis progressed rapidly, operation was delayed by objecting parents, until cyanosis occurred.

With the assistance of Dr. Denhard, a rapid tracheotomy without narcosis was performed, a large cast escaping when the tube was introduced. Some interesting observations were made at that time similar to the results obtained by O'Dwyer with intubation in this disease. It was found that the inspiratory spasm was modified considerably; on the other hand, the paroxysmal expiratory cough, with considerable cyanosis during the attack, recurred at irregular intervals. In fact the usual

paroxysm took place, but the inspiratory spasm of the glottis was absent.

The coughing spells were severe and recurring hemorrhage of larger or smaller amount due to the presence of the tube, compelled an early removal of the canula about the fifth day. That the hemorrhages were caused by the tube cannot be doubted, as they did not recur after its removal. The case eventually recovered.

The same danger of ulceration and hemorrhage is possible in cases in which intubation is performed, even though the improved rubber tube is used. It is in children whose general health is below par, because of the vomiting and inanition, in which the procedure is recommended; such patients are very apt to develop ulceration from an intubation tube.

The principal objection to the plan is the difficulty in a certain number of cases of feeding children wearing an intubation tube. Only those having such cases under their care can appreciate the position.

In the class of cases referred to above, grave cases attended by severe and repeated attacks of vomiting with loss of strength and flesh, one or other of the following methods have given excellent results:

It is an every day experience to find that when children with whooping-cough are sent out in the open air, the paroxysms become less severe and frequent. If the children are sent out upon the water, the improvement is still more marked, vomiting does not follow the spell and food is retained.

In other instances, as soon as the vomiting is over, more food is given; now and then this plan works favorably. Pushing forward the jaw, as in anesthesia, in many cases has relieved the paroxysm and prevented the vomiting. The mother or nurse may readily be taught the manipulations.

We have still another method at our command, that is, the use of codein in small and repeated doses to the verge of slight narcosis, sufficient to overcome the spasm of glottis. A few cases treated in this way have been carried safely over the danger point, by the judicious use of codein. As a rule it is not necessary to employ the remedy for more than a few days or a week. At the end of this period, the severity of the attack is relieved, food is retained, and the usual routine treatment

may be continued. The cases in this category are sufficiently grave to require careful supervision, independent of the method of treatment, the latter requiring but the ordinary intelligent oversight.

The above hints, not by any means original, are offered as having proved successful in grave cases, when the severity of the paroxysms induced vomiting, thus interfering with the nutrition of the patient.

209 EAST SEVENTEENTH STREET.

Contribution to the Study of Malignant Tumors of the Kidney in Children.—P. Sorgente (*Annal. de Méd. et de Chirurgie Infantiles*, Jan. 1, 1900) says that the preponderance of the round celled variety of sarcoma explains the rapid development of the majority of renal tumors in children. Epithelioma is very rare. Renal tumors are generally primary growths. They are almost always unilateral, and the right seems more often affected than the left. The kidney is the organ in children most frequently attacked by malignant neoplasm. As to age, the first year of life furnishes the largest number of examples. Sarcoma in all its varieties is the most usual form. In summing up the results of operated cases, it is found that death by operation is frequent, recurrence is very frequent, and a definite cure is exceptional. However, the results of recent operations have been happier than the earlier ones were.—*Medical Record*.

Eczema in Young Children.—E. Périer gives (*Annal. de Méd. et de Chirurgie Infantiles*, Jan. 1, 1900) the history of an eczematous child who serves as a type in this trouble. Baths were stopped, sponging with tepid marshmellow water being substituted. For three days local compresses of cold boiled water were applied, covered with oiled silk. After three days the child was washed in olive oil, and then a coating of zinc paste containing a little menthol was applied to diminish the itching. Internally it was given from two to three glasses of hot boiled water in which was a small pinch of bicarbonate of soda.—*Medical Record*.

ARCHIVES OF PEDIATRICS.

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Edited by WALTER LESTER CARR, M.D.

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TUBERCULOSIS.

Tuberculosis in some of its phases is a most insidious disease and the difficulties of its detection are, in many cases, due to an uncertainty as to the localization of the tuberculous process and the avenue of entrance of the bacillus.

It was formerly supposed that the bacillus was received through the air passages but this means of infection is now known to be not the only path by which the tubercle bacillus enters the system. It is true that the bronchial lymph nodes are the ones most commonly diseased but the bacilli enter also through other channels, *e.g.*, the nose, pharynx, tonsils and esophagus. The tubercle bacilli make their way from the intestinal surface and the risk of systemic infection from tuberculosis of the mesenteric lymph nodes is greater than has been appreciated.

Adami regards the number of cases of tuberculosis which

occur during the milk drinking period of life as a convincing proof of this origin.

Still, who reported on 1,728 consecutive autopsies on children, found tubercle present in 269. He observed, that out of 216 cases in which a careful examination of the lymph nodes was made, the infection had occurred in 138 cases through the bronchial lymph nodes and in 63 through the mesenteric lymph nodes. This proportion of tuberculosis occurring through the lymph nodes of the mesentery warrants further observations of the symptoms of tuberculous disease in the cases where physical signs are wanting.

Leaving out of consideration the symptomatology of the general tuberculous state and of the disease as localized in the respiratory passages it is well to note that evidences of the disease may be shown in atypical forms.

Comby makes a clinical division of three varieties, one of which is the usual pulmonary form. The two that are of the most interest are first, an apyrexial tuberculosis, which runs the course of an ordinary athrepsia or dyspepsia with symptoms of emaciation and diarrhea, and second, a febrile tuberculosis due to an acute infection with symptoms that simulate pneumonia, typhoid fever and meningitis.

Progressive emaciation, either with or without temperature should lead to a careful examination of all the lymph nodes and in a case where the history is uncertain regarding the presence of tuberculous foci in the respiratory area, attention should be directed to the abdomen for the detection of enlargement of the mesenteric lymph nodes and for changes in the peritoneum. The onset of tuberculosis in the abdomen, either in the mesenteric lymph nodes or in the peritoneum, may not be recognized, but the autopsy notes show that such cases are far from rare and call for clinical records that will aid in the diagnosis. It is not unlikely that the symptoms are wanting but that sufficient attention is not directed to them. If the dangers of tuberculosis are to be overcome they must be appreciated by a consideration of symptoms due to foci of infection outside of the lungs.

Bibliography.

Mentally Deficient Children: Their Treatment and Training. By G. E. Shuttleworth, B.A., M.D. Second Edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. London: H. K. Lewis. Price, \$1.50.

A second edition of this well-known book, indicates that the members of the medical profession who have to care for mentally defective children, accept the author as a writer of experience on the subject.

Two new chapters, giving some account of the inquiry undertaken for the Education Department of England, are added. It is satisfactory to find that the recommendation made by the committee, of which the author was a member, has been made a law to govern the elementary education of defective and epileptic children.

The advantage of training in the cases of feeble-minded children is persistently advocated, and the results quoted show how beneficial these results have been both in this country and abroad.

The book is compact but it gives in an appendix references to the bibliography of the subject, for those who desire more extended information.

It is a pleasure to recommend a volume that contains so much that is valuable and suggestive in the care of children who are below the standard of mental development.

Progressive Medicine. Vol. I. 1900. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Philadelphia and New York: Lea Brothers & Co. Issued quarterly. Pp. 404. Illustrated. Price \$10.00 per year.

The two sections of this volume that are of particular interest to the specialist in pediatrics are edited by Drs. F. A. Packard and A. D. Blackader. Their names guarantee the character of the chapters. The former has collated the literature of infectious diseases, acute rheumatism, croupous pneumonia and influenza. The latter has charge of the general subject of the diseases of children.

The book is well up to the date of its issue and its typographical appearance is a credit to the publishers.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON ORTHOPEDIC SURGERY.

Meeting of January 19, 1900.

A. B. JUDSON, M.D., CHAIRMAN.

THE NEURO-MUSCULAR ELEMENTS IN HIP JOINT DISEASE.

DR. N. M. SHAFFER read a paper, of which the following is an abstract: If, as was generally conceded, the origin of hip joint disease was in the epiphysis, a great centre of growth and development supplied from the central, spinal and great sympathetic nervous centres, it would be readily seen that the presence of a foreign body like the bacillus of tuberculosis in such an osteitic focus would cause serious nerve irritation.

The following neuro-muscular elements had been recognized and described: 1. Involuntary tonic muscular contraction. 2. Muscular atrophy. 3. Reduced faradic reaction. 4. Increased muscular excitability. Together they presented a clinical picture of an irritative peripheral nerve lesion and gave expression to a distinct reflex spinal condition. They were absent from a joint suffering a simple injury and from primary tuberculous degeneration of synovial membrane, which was comparatively simple in structure and nerve supply.

REFLEX MUSCULAR SPASM.

This sign had been noticed early in his practice by the reader of the paper, who had spoken of it in 1872 as a "reflex muscular spasm," the first time, so far as he was aware, that the term had been applied to the sign. The occurrence and character of the spasm were unmodified by opium or chloral, but it was annulled by ether or chloroform. It produced joint deformity and sometimes simulated ankylosis. Clinically, it was of the utmost importance. Its presence was the first sign of the disease and its absence the surest warrant for the suspension of treatment. It was involuntary, tonic, tetanoid.

When passive motion reached a certain point, at which the intraarticular pressure excited nerve irritation, the muscles involved, hitherto quiet, suddenly contracted and resisted further motion. When that point was reached, the alert joint sense

almost talked to the observer. When convalescence approached and actual immobilization was no longer required, the motion permitted by the apparatus used should be to the inner side of the point indicated by the spasm. Protection, however, should be maintained until the joint was free from reflex muscular spasm, when the patient might safely be restored to a gradually increasing use of the weakened limb freed from its diseased joint. Cases illustrating the ill effects of not heeding this indication were related.

MUSCULAR ATROPHY.

In this sign of joint disease we were dealing with something more than the effect of disuse. It was far from being functional atrophy. Although an early, important and expressive sign, its significance was impaired at a later stage by the incidental effects of mechanical treatment, which included rest and compression. This was to be borne in mind when the patient and his friends were apt to think that the atrophy was entirely the result of maintaining too long the restraints of treatment.

Before applying electricity to the muscles involved, the reader of the paper had surmised that *reduced faradic reaction* would be found. It was seen to be uniformly present in all of the atrophied muscles which were subjected to electrical test. In 1892 *increased muscular excitability* was shown by Dr. E. G. Brackett to be a fourth constant neuro-muscular element in hip joint disease, readily demonstrated early in the disease by the exaggerated patellar tendon reflex.

DISCUSSION OF REFLEX MUSCULAR SPASM.

DR. V. P. GIBNEY said that the reflex muscular spasm was valuable as an aid to correct diagnosis and of great assistance in determining the time when to give up protective treatment. It was difficult, however, in every case to recognize the final disappearance of this sign. The best test of a joint which had been long under treatment was the use of the limb for one or two weeks, even in spite of the spasm. If, after free use, close observation revealed an increase in motion, the brace might be discarded; but if the range of motion had decreased, with perhaps a little more spasm, mechanical treatment should be resumed.

DR. T. H. MYERS said that the presence of synovial tenderness, or periarticular pain, or stiffening of the affected joint or neighboring joints, from prolonged immobilization, might easily

make difficult a clear recognition of the resistance to motion made by reflex spasm. It was better to err by attributing the resistance arising from these causes to reflex action than to make the mistake of not recognizing the presence of the tetanoid spasm. He related the recent history of a boy, who had been entirely free from all other signs, in whose case a positive, afterwards confirmed, diagnosis was made on the presence of slight reflex spasm near the limit of passive motion, and the history of a girl, seen ten years ago, who on superficial examination appeared to have been cured of acute hip disease. There was wide motion and no lameness. When, however, the thigh was flexed, and at the same time prevented from outward rotation and abduction, a slight reflex muscular protection was found at the limit of motion. As the parents objected to a further continuance of treatment, the patient was dismissed "improved but not cured," to suffer a return of the acute symptoms a few months later.

DR. G. R. ELLIOTT thought that there was no hard and fast rule as to the discontinuance of treatment. Instruments should be used readily permitting whatever increase of motion the symptoms warranted, to be discarded only when free movements for a considerable time were followed by no bad results.

DR. W. R. TOWNSEND recognized the nervous complications of joint disease and the practical value of reflex contraction as a clinical sign in disease of the hip joint.

DR. H. L. TAYLOR acquiesced in the views presented, first, that reflex contraction was the earliest sign of hip disease, and, second, that so long as it persisted treatment of the joint could not be safely discontinued—views generally, if not universally accepted by American orthopedic surgeons.

DR. R. WHITMAN agreed with the now commonly accepted view of the diagnostic significance of the reflex muscular spasm of hip disease. He thought that muscular spasm in convalescence corresponded to the acuteness rather than the area of the intraarticular process and called for absolute restriction of motion, in addition to protection, for the completion of resolution.

DR. A. B. JUDSON said that John Hunter had noticed the peculiar action of the muscles in joint disease. He said (1786): "Stiffness of the joint depends on the involuntary contraction of the muscles. . . . I think this arises from sympathy, or a consciousness of the parts being unable to answer to the ac-

tion of the muscles, and it comes nearest to human reason of anything in the body." The words "on guard" (H. G. Davis) and the graphic expression "vigilance musculaire" (Vorneuil) had been applied to the watchful attitude of the muscles in joint disease. Though present in other diseased joints, reflex muscular action was seen best in the hip, because, being a ball and socket, it depends more than any other kind of joint on its muscular system for both motion and stability. For this reason reflex muscular contraction was of great importance in the diagnosis of the earliest stage of hip disease when the lameness is inconstant, the atrophy equivocal and the pain referred to the knee. It was of no less importance as a sign in convalescence.

DR. MYERS said that ten years ago he had observed five patients affected with hip disease, each of whom received a number of injections of tuberculin. He had made twenty or thirty tests of the muscular spasm in each case, and it was found that in the reactions caused by the injections the spasm became more alert as the temperature arose and diminished with the fall of the temperature.

DR. ELLIOTT said that nerve irritation at the site of the disease was reflected through the cord and gave rise to the spasm of the muscle.

DR. W. TRUSLOW said that the fact that slowly applied and progressively increased mechanical traction completely and quickly overcame the muscular action suggested the tetanoid quality of the spasm.

DR. F. PETERSON thought that the word tonic expressed the condition of the muscles in hip disease, and that the word tetanoid was not applicable. Apart from a reference to the reflex theory, the tonic spasm might be explained on the theory of an irritation of the cells of the nerves connected with the joint in the same way that the tonic spasm in muscular rheumatism, so called, of the sternocleido-mastoid muscles is supposed to come from irritation due to some poison affecting the nerves. Hyper and hypotonia of the muscles might be here considered. In locomotor ataxia hypotonia is referred to destruction of nerve fibres, and the muscles in joint disease might by some irritation be kept in a condition of settled hypertonia.

DR. TAYLOR thought that tetanoid had a certain suggestiveness, but he preferred the word tonic or some one of the other terms which were in general use.

DR. ELLIOTT thought that tetanoid better than tonic defined the character of the spasm, which was sometimes clonic.

DR. MYERS thought it probable that a similar spasm might attend non-tubercular lesions of the bones and joints, such as partial fracture or complete fracture without displacement. He thought he had seen spasm very like that of hip disease in such cases.

DR. TAYLOR said that there was nothing especially diagnostic of the tuberculous condition in tetanoid or reflex spasm, which might appear different at different stages, or in different cases, of tuberculous disease, as it did in given cases of such different affections as tuberculosis, osteomyelitis, rheumatism and synovitis, the spasm depending on the location and grade of the irritation rather than on its pathological origin. It would not be often found in synovitis.

DR. WHITMAN said that reflex spasm, as an evidence of the irritation and sensitiveness of a joint, was not found in synovitis and was not restricted to tuberculous disease, although that disease was its most common cause.

DISCUSSION OF MUSCULAR ATROPHY.

DR. E. D. FISHER said that these signs of hip disease could be referred to the reflex action of the spinal cord. But using the term reflex did not go far as an explanation. The cerebrum is not involved. Serious implication of the spinal cord or the nerve supply of the muscles was out of the question; but in malnutrition of the spinal cord he thought we had possibly an explanation. On this theory the whole reflex arc would be involved. Beginning with a sensory disturbance the irritation is carried to the cord through the posterior roots, and then to the anterior horn, where it caused spinal irritation or exhaustion, if it might be called that, and atrophy. A parallel might be found in disease of the fifth nerve, with reflex irritation of the seventh, causing spasm of the face, in which removal of the cause of irritation in the nerve or the ganglion relieved not only the pain but the spasm.

The term reflex conveyed little or no explanation unless it became part of some coherent plan the result of reasoning and fortified by *post-mortem* examination. He recalled a case of ankylosis of the knee and atrophy, the result of an injury at the age of seven and followed by an autopsy at the age of forty-

one. There was marked atrophy of the anterior horn in the segment corresponding to the knee and in the cerebral convolution controlling that part of the body. It was common to find atrophy thus localized after the loss of a member in early life.

Altogether the presence of these elements in hip joint disease confirmed the theory of a trophic centre in the spinal cord. Wasting was common at the onset of joint disease, in which the consecutive atrophy was always more rapid than in any injury to a large nerve. Recovery was also more rapid than in poliomyelitis, in which the lesion might be a destructive one.

DR. PETERSON said that an explanation by reference to the passage of an irritation to the spinal cord and its reflection along the trophic nerves to the muscles was scarcely a probable one, because irritation of trophic nerves generally gave rise, as it did in any sort of nerve, to an excess of function.

In joint atrophy there was wasting away of muscles from wasting away of trophic centres or destruction of trophic fibres. Faradic action was reduced in quantity but normal in quality. The manner of response to the faradic and galvanic currents was normal though the muscle was wasted. The subject was interesting because of the absence of the reaction of degeneration. In the atrophies of progressive poliomyelitis, with actual degeneration of trophic centres, there was profound reaction of degeneration. In only one other class of marked muscular atrophy was reaction of degeneration absent, the class of primary muscular dystrophies, not due to any nerve lesion, in which there was destruction of the muscular fibres, which wasted away, one after the other, those left responding in a normal way. In very marked instances of this condition there was reaction to the faradic current as in joint atrophy. Joint atrophies might be explained in a similar way, without reference to the spinal cord, on the ground that, although many of the trophic fibres coming to the muscles which moved the joint would be connected with the joint, all of them were not; and when an inflammatory process in the joint destroyed trophic fibres and produced atrophy some of the muscular fibres were not destroyed and responded with absence of the reaction of degeneration, as happened in progressive muscular dystrophy.

In rheumatism and sciatica and other painful affections there was *increased muscular excitability* as shown in the knee-jerk. The response to the stroke of the tendon was, however, too

rapid to allow of a trip to the spinal cord and back, and yet it was governed by spinal cord conditions. Neither this nor the other neurological conditions found in hip joint disease need be necessarily considered in connection with the spinal cord.

DR. ELLIOTT said that the novel and interesting dystrophy theory might explain the atrophies of monarticular rheumatism and rheumatoid arthritis, which were distinct from the joint atrophy under discussion.

DR. WHITMAN said that, among other contributing factors, physiological disuse was the most important and constant cause of the atrophy of joint disease, which affected all the component parts of a limb, including the bone. It increased for a time more rapidly when the symptoms were relieved by fixation of the limb. It followed fixation of the limb in splints after fracture of a bone.

DR. GIBNEY said that much of the atrophy following the use of apparatus for several years was caused not only by disuse but also by constricting bandages and appliances.

DR. ELLIOTT said that joint atrophy was specific and in no way related to the disuse atrophy and to that which came from bandaging.

DR. TOWNSEND said that disuse, which was an obvious and controlling factor of the later atrophy, played a very unimportant part in the production of the early and characteristic atrophy of joint disease, which appeared in patients confined to the bed.

DR. J. B. BOGART said that the joint atrophy of the neurologist arose from a nerve lesion, but the atrophy of orthopedic practice had a threefold origin in nerve implication, disuse and the restraint incident to treatment.

DR. TAYLOR suggested overwork as a cause of the primary atrophy. When a muscle was exercised beyond a certain point or subjected to prolonged electrical excitement, it atrophied, and the continuous localized sensory irritation of joint disease might overwork the muscles, in a physiological sense, through the motor centres in the cord.

DR. FISHER said that the muscular atrophy caused by overuse could be referred to spinal cord atrophy, as was almost conclusively proved by the experiments of Hodge, who had recorded atrophy in the spinal cord cells of pigeons which had been flying for hours.

DR. TAYLOR said that in cases of diseased hips of long standing there was an interference with the circulation and an extensive atrophy affecting even the bones, which doubtless had several factors, including retarded growth of the parts affected, in addition to the early joint atrophy. Similar effects were to be seen in the wake of infantile paralysis and fracture of the femoral neck in children and in certain congenital malformations.

DR. JUDSON said that in many cases of serious disability of a lower extremity a large part of the asymmetry was due to hypertrophy of the unaffected limb from overuse.

DR. PETERSON said that the results of joint atrophy could not be confounded with those of disuse. In a shoulder joint, immobilized by acute arthritis, there was rapid atrophy of the muscles, which was absent from a shoulder joint immobilized in any other way. In an injury of the brain, as in apoplexy, there was disuse but no atrophy of the muscles at all. In fracture of the femoral neck in a child one side did not grow as fast as the other. In infantile cerebral hemiplegia one side of the body did not grow as fast as the other, not from atrophy but from retardation of growth on the paralyzed side. In any serious injury of an extremity retardation of growth came from disuse, or from interference with nutrition from disuse.

DR. SHAFFER said that at one time he had seen several patients with hysterical imitation of hip joint disease under treatment for months by the long hip splint, adhesive plaster and bandaging. In some of these cases there was muscular resistance but no atrophy. After true hip joint disease the muscular atrophy might never wholly disappear, but the limb would do its work well. If considerable motion returned to the joint as the result of treatment, the patient would walk without a limp, and in ankylosis in a good position a most useful limb would result.

In his earlier studies he had found no reference to the spasm of hip joint disease in the then limited works on orthopedic surgery, but in Charcot's lectures he had found light on the subject; and he had for many years steadfastly called attention to this interesting phase of chronic tuberculous joint disease, and, inasmuch as spasm and atrophy were not observed in chronic synovitis of the knee and ankle, he had proposed that

hip joint disease, like Pott's disease, was an osteitis and not a synovitis.

In his paper he had tried to indicate when apparatus might be discarded in hip joint disease. This decision could not be rightly made until the tetanoid spasm was duly appreciated. It was not difficult to recognize it, once its peculiar characteristics were understood. He thought that the word tetanoid would sooner or later be generally considered to be applicable, or that some other word, broader than tonic and more comprehensive than reflex, would be applied by neurological students, who had here a subject well worthy their investigation, to the end that the profession might know the real value of the neuro-muscular elements in hip joint disease and recognize that they had a distinct pathological origin.

Operative Treatment of Congenital Enuresis.—S. K. Mayer relates (*Vratch*, February 19, 1900) the case of a twelve-year-old girl who suffered since birth from incontinence of urine. Examination showed, with otherwise normal external genitals, a widely open urethral orifice. The urine was normal in character, but the bladder was constantly empty. The urethra was narrowed by operation, and the bladder soon became tolerant of water, so that the child was not forced to empty it more than once an hour or hour and a half. Three weeks after operation there was perfect control over micturition, and the child slept every night from ten o'clock to seven without wetting the bed.
—*Medical Record*.

Treatment of Chronic Constipation in Childhood.—Heinrich Doerfler (*Münchener Medicinische Wochenschrift*, Jan. 23, 1900) has for the last six years met with flattering success in the treatment of chronic constipation in children by the administration of butter. It should be fresh and of the best quality. It should be given in the natural state and not by means of any vehicle. For the first month clysmata may be given; in the second and third month from a half to a whole coffee-spoonful of butter daily, morning and evening, till the stools are normal; then only every two days. The dose is further increased according to the age.—*Medical Record*.

Current Literature.

MEDICINE.

Picard, A. : Experimental Tuberculous Meningitis. (*La Presse Médicale.* 1900. No. 11.)

Dogs were used for the experiments, the inoculations being made into the blood directly or into the cerebrospinal fluid in the lumbar, atloido-occipital, or cranial regions. In the majority of cases a diffuse process resulted; in a few, meningitis *en plaques* was produced. The toxins secreted by the tubercle bacilli play an important part in the evolution of the experimental meningitis, and the cerebrospinal fluid is an essential factor in the dissemination of the bacillus and its toxins.

Examination of sections stained with Nissl's method showed that the nerve cells and their processes were swollen. These cellular changes in the nerve centres explain the motor symptoms occurring in the course of a generalized meningitis. In an extradural tuberculosis the symptoms due to direct bacillary infection may be added to those due to pressure. The exudate or the granules on the pia mater are not the result of a polymicrobial infection; the bacillus of Koch (or its toxins) is capable of producing them.

Nobécourt : On the Elimination by the Urine of Sugars Introduced Subcutaneously or by the Digestive Tract. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 4.)

From twenty-seven observations made on infants with lactose, glucose and saccharose, it becomes evident that the intestinal mucous membrane has the power of transforming large quantities of lactose introduced with the milk. On the whole, this power is greater in infants than in adults. The intestinal mucosa has an inverting action upon saccharose, fully equal to its action upon lactose. Glucosuria was never observed in healthy infants experimented upon with lactose and saccharose, but in some rachitic babies to whom glucose had been given an alimentary glucosuria was produced. The infantile organism has a more marked action upon glucose than the adult organism has. The action does not seem to be limited to the liver, but is possessed by all the tissues.

Weill, M. E., and Gallavardin, M. L.: Acute Pericardiac Lymphosis, Probably Rheumatic. (*Arch. de Méd. des Enf.* Vol. iii., No. 4.)

A girl, sixteen years old, of tubercular family history, had had an attack of chorea at the age of twelve, and another two years later. General weakness, with frequent headaches and cardiac palpitation, remained. An acute pericarditis caused death in three weeks, the clinical symptoms being predominantly those of myocarditis. At the autopsy both the visceral and parietal layers of pericardium were found to be thickened, vascular and adherent to one another by a layer of fibrinous exudate. The myocardium was in a state of fatty degeneration, as were the liver and kidneys. There were a few very recent vegetations upon the aortic valves.

The case is one of rheumatic pericarditis, acute infectious endocarditis being positively excluded. Of thirty-two cases of pericarditis, almost all of rheumatic origin, observed by the authors during the past six years, more than fifty per cent. were fatal. The fatty degeneration of the epithelial elements of the viscera in these cases must be due to some general, as yet undetermined, cause.

Biernacki, Jno.: The Continuity of the Toxic Process in Fatal Cases of Diphtheria. (*British Medical Journal.* No. 2039, 1900.)

The author studied the blood pressure curve in cases of diphtheria, using the pocket form of the Hill-Barnard sphygmometer. All cases examined were under ten years of age. The curves are roughly divisible into three parts. First stage, pressure is maintained at or near the normal level; second stage, slight decline; third stage, a rapid fall, beginning more or less abruptly and persisting until death. The absolute and relative periods occupied by these three stages vary widely. In protracted cases the second stage is most prolonged, and then there may be a partial recovery preceding the final depression. If the third stage is exceptionally lengthy, the fall becomes gradually less until a condition of equilibrium at a low level is maintained till death. The lowered pressure in the second stage is due to relaxation of blood vessels, and in the third heart failure is a more potent factor.

Uremia probably appears in a modified form, but its super-vention is not necessary to the evolution of the essential symp-

toms. Although paralysis is sometimes the chief cause of late heart failure, the fall in blood pressure, when not too rapid, is followed by cardiac distress. Marked dyspnea is common in this type, especially when the cardiac distress is paroxysmal.

The action of the diphtheria toxin causes, in the first place, a fall in blood pressure and, secondly, certain tissue changes, especially cardiac and renal. The lower pressure diminishes the quantity of urine passed. This allows the toxin to accumulate in the blood and causes a further fall in blood pressure, aggravated by heart failure. The toxic change in the renal tissue is not a main factor in the development of anuria. Albuminuria is not always present in fatal cases. When the duration of a fatal case is short oliguria supervenes and is followed by suppression. When, however, the patient is within a few hours of death, the latter condition can have but little effect. In prolonged cases, with a suppression lasting for several days, the presence of uremic poisons in sufficient quantities to produce symptoms is inevitable.

Biernacki, J.: The Essential Toxic Symptoms of Diphtheria. (*British Medical Journal.* No. 2035. 1899.)

The symptoms first present are ascribable to sore throat and fever, the first specific signs being undue pallor, moderate compressibility of pulse and lassitude. Three or four days later the pallor becomes increasingly intense, the pulse more compressible and the fever less. Later the pulse is irregular, the urine diminishes in quantity and the extremities tend to become cold. Frequently there is oppressive pain referred to the epigastrium or cardiac region. Nausea and vomiting become severe and frequent. Toward the end the surface of the body is blanched and cold, the temperature is subnormal and the radial pulse disappears. Other symptoms are jactitation and dimness of vision. The mind remains clear until the end. Being impressed by the similarity between the above symptoms and those which accompany fatal hemorrhage in enteric fever, the author inferred a common cause, *viz.*, fall in blood pressure. Upon investigating a fatal case, and using a Hill-Barnard sphygmometer, he found that from the third to the ninth day, on which latter the patient died, blood pressure fell from 95 to 55 mm.; the temperature ranging from 100° to 96° F. at death, and the pulse from 124 to 116. This latter, however, is variable.

In six cases the fall in blood pressure was slight at the outset, but suddenly became more marked and was then maintained until the end. In the two most severe cases this final drop occupied only forty-eight hours. On the other hand, it was in one case prolonged to six days.

Ausset: Hysterical Pseudoparalysis in a Child Ten Years Old. (*L'Écho Médical du Nord*. Vol. iv., No. 12.)

The girl was of good family and personal history. She had come in contact with an idiot who greatly frightened her, and had been nervous since. There were headaches and constipation, with weakness in the legs; suddenly walking became impossible. It proved to be a pseudoparalysis only, as the patient resisted flexion, or extension of the extremities, when made by the examiner. There was loss of sensibility both to pain and to heat, and exaggerated patellar reflexes, with diminution of the reflexes of the pharynx and pupil. The child never had hysterical crises and was totally cured by suggestion.

Fulton, H. D.: Variation of Type in Diphtheria and Scarlet Fever. (*Medical Council*. Vol. v., No. 2.)

The change of type regarding virulency of zymotic diseases is especially marked in diphtheria and scarlet fever. Fulton gives several tables showing the increased or diminished mortality from these diseases in the different cities of the world during the past few years. In Chicago, 1891-96, the deaths from scarlet fever decreased from 494 to 54. In New York, from 1892-95, the deaths from scarlatina fell from 2,228 to 857. In San Francisco during the same time they fell from 45 to 6, and from diphtheria from 229 to 19. These results he proves are not on account of improved methods of sanitation or treatment, for they have occurred repeatedly before and have been followed by severe relapses to the other extreme. In Baltimore the mortality from diphtheria had diminished to 51.87 per cent. in 1896, and in 1897 a change occurred, giving more deaths than in any of the four previous years. Stringent measures were adopted to reduce this, but in 1898 the rate was still increasing. The curves of diphtheria and scarlatina do not follow one another with any regularity, as when one is increasing the other often diminishes.

The author concludes by warning against overconfidence in measures that are for awhile only apparently successful and urging to increased efforts when a virulent stage presents itself.

Lunn : Paroxysmal Hemoglobinuria in Children. (*British Medical Journal.* No. 2039. 1900.)

A girl, aged six years. The symptoms were noticed since one year of age. From time to time she passed port wine urine containing normal red cells. Patient usually had rise of temperature with chill and collapse when attack was imminent, but in interval health was good. Proportion of red corpuscles to white in blood was about half the normal. Oxalates had been found in urine, but the intermediate urine was normal. The possible relationship between this condition and syphilis was noted; also possibility of an existing high arterial tension, due to congenital thickening of the vessel walls.

West, J. P. : Croupous Pneumonia in Children. (*The Cleveland Medical Gazette.* Vol. xv., No. 3.)

This variety forms about one-third of the cases of pneumonia seen in children. As a rule, it is primary but often occurs as a complication. During invasion, which is sudden, there may be some doubt as to diagnosis, as physical signs frequently are delayed for several days. The perverted pulse-respiration ratio is a very important sign, it changing from 10-35 to 10-20 or even lower. The typical breathing is a grunt or moan, the pause occurring after inspiration instead of after expiration, as in health. After the usual course of from five to eight days a slight improvement occurs, with a drop in temperature by crisis to normal. This crisis occurs in about two-thirds of the cases. In the other one-third, particularly in children under two and one-half years, the fall occurs by lysis.

The author mentions the importance of making a thorough physical examination even in spite of the child's crying and squirming. The deep inspiration of the cry will give better results than quiet respiration in bringing out the fine râles.

Three things should always be remembered when examining a child. First, the left lower lobe is most frequently affected, next the right apex, next the right base, and next the left apex. Second, the disease may only be found in the apex or in the axilla, and may not involve a whole lobe. Third, the liver dullness extends to the fifth rib in front, to the seventh on the side, and to the ninth in the back, and that crying may cause it to extend considerably higher, particularly in the back.

In palpation the edge of the hand gives better results than the palm. The same location over the two lungs must be

closely compared, and percussion must not be made on one side during inspiration and on the other during expiration, as this will give a difference in sounds. Three types of croupous pneumonia are mentioned, classed with reference to the prominent symptoms—gastric, cerebral, and wandering or migratory.

The diagnosis is to be made from bronchitis, pleurisy and bronchopneumonia. In pleurisy with effusion, too much stress is not to be laid upon the displacement of the heart. In children this almost never occurs in right-sided pleurisy and seldom in left-sided, and then only with a very large effusion. Bronchopneumonia is generally a secondary disease preceded by a bronchitis with or without a coryza, while croupous pneumonia is primary. The cause of bronchopneumonia is more varied and irregular. The temperature rises gradually, is not so high nor so regular, and the daily variations are greater. There is no critical fall. The cough is more constant and paroxysmal. Dyspnea and cyanosis and retraction of the soft parts is more common in bronchopneumonia. In the latter the physical signs are found in both lungs, generally posterior, and are never confined to one apex or axilla. He gives the mortality as four to six per cent. and warns against too much treatment. An abundance of fresh air and diluted food in small amounts he holds more important than drugs, with the exception of small quantities of whiskey, strychnin, brucin or digitalis, if signs of collapse present. For the external depression sometimes following the crisis nitroglycerin frequently repeated is valuable. If there is much pain or cough, an occasional dose of codein or phenacetin will be of service. The effect of high temperature upon the nervous system is to be watched and treated by baths of 95° to 100° F., with constant friction of from three to five minutes' duration.

Sachs, Richard: Operation on the Pharyngeal Tonsil; Hemophilia; Death. (*The Journal of Laryngology, Rhinology and Otolology*. Vol. xv., No. 2.)

A boy aged ten years had a chronic enlargement of the pharyngeal tonsil, septal spur in the left nostril, and a chronic swelling of the right inferior turbinated bone. The boy was given chloroform; pharyngeal tonsil was removed. Some time after the operation, when the bleeding had ceased, the child was taken from the doctor's office, where the operation had

been done. Some hours later the child began to bleed very freely, and was very weak. Tampons were used and the bleeding seemed to stop. Two hours later the child was still pale, bleeding again, but not complaining of any pain, only of thirst. After some hours the child was bleeding again, was weaker, and had fainted several times. It was then learned that the boy had had a tooth extracted some months before, and there was great difficulty in stopping the bleeding. The mother's father had died at the age of forty-two of hemophilia due to bleeding of the kidney. The boy's temperature went up to 102° F., there was a gradual failure, and four days after the operation the boy died. He felt perfectly well during the whole time, and never complained of anything but thirst. The bleeding never ceased, and it was utterly impossible to stop it.

Thistle, W. B.: Endocarditis of the Right Heart. (*Dominion Medical Monthly*. Vol. xiv., No. 1.)

At a meeting of the Toronto Clinical Society, a specimen taken from a rheumatic girl of twelve years was shown. The four valves exhibited marked changes; very pronounced mitral and just as pronounced tricuspid, with distinct vegetations on the aortic, and also on the pulmonary valve. There was a very distinct little tuft on each segment of the pulmonary valve. This was regarded as an extremely rare condition. Some authorities believe that endocarditis never affects the pulmonary valve.

Dercum, F. X.: Note of a Case of Acute Poliomyelitis. (*The Journal of Nervous and Mental Diseases*. Vol. xxvii., No. 2.)

A girl of two years had always been a strong, healthy baby. Her family history was negative as regards nervous or tuberculous affections. She had rubeola at one year of age, varicella at fifteen months and scarlet fever later, making a good recovery in each instance.

While playing she fell to the pavement. After a short "cry" she began to play again and the incident was forgotten. A week later the mother noticed that she tottered in walking. Later she was unable to stand. She was found to have very little use of her arms and to be unable to hold up her head. The following morning the paralysis was complete in arms, legs and neck. On the sixth or seventh day afterwards a slight

return of power in the left leg was noticed, and later in the right arm. There was no loss of sensation.

An examination of the eye showed the pupillary reflexes to be normal. Hearing was normal. There was no cardiac or pulmonary lesions. No involvement of the mental faculties. Apparently there was no pain and headache. Constipation was marked. No retraction of the head or abdomen. As a result of lumbar puncture, 2 c.c. of clear, watery fluid were withdrawn. Microscopic examination showed a few leucocytes and a small quantity of granular debris. The specimens were stained and showed the diplococcus, morphologically and tinctorially, resembling the diplococcus at Sternberg.

Pfingst, A. O. : Quinsy in Children. (*The Louisville Monthly Journal of Medicine and Surgery.* Vol. vi., No. 40.)

Two cases of phlegmonous inflammation of the peritonsillar tissue are reported. One was in a boy of six years, who had about completed desquamation from scarlet fever. The other was a boy of eight years who had pain in his throat during convalescence from measles.

Quinsy is rarely seen before the tenth year, though cases have been reported in infants. The symptoms are regarded as less severe than in adult life.

The treatment should consist in the administration of brisk purgatives, sprays and antiseptic gargles, ice in the mouth; in other instances, poultices and the opening of the abscess so soon as the presence of pus is suspected. There is a greater danger of strangulation if these cases are left to open themselves than in older patients.

Baldwin, Samuel C. : Congenital Scoliosis. (*The Western Clinical Recorder.* Vol. ii., No. 1.)

Rotary-lateral curvature of the spine is the most common of all deformities, more common in girls. As a rule, there were no cord symptoms accompanying this curvature.

A case of a girl is reported which was regarded as congenital scoliosis. Posterior curvature included the sixth and seventh cervical and first and second dorsal vertebræ. The posterior spinal processes were very little out of the normal line, but the bodies were twisted very much to the left, and the concavity of the right was very noticeable. There was no compensatory curve, but the original curve was increasing in size.

It was thought that instead of muscular weakness causing the curvature, it was more probable that the curvature caused the muscular weakness. Rickets were not considered as a cause. There may have been an injury during birth or *in utero*, as the mother stated that she was very small during the time of pregnancy. The probability is that there was so little amniotic fluid that the child became lodged in a bent position and was not able to move. This theory has been advanced by Weissenberg, Hirsch and others.

The case reported was considered of interest because of the location of the curve, the cervical region being an unusual location for lateral curves; the shrinking and partial paralysis of the right side showing interference with the function of the cord; and the unilateral sweating and flushing, which are comparatively rare in any condition. There was no hereditary condition known.

Hertoghe: Action of Thyroidin on Infantilism and Arrested Growth. (*Gaz. des Mal. Infantiles.* Vol. ii., No. 7.)

The normal hypertrophy of the thyroid gland at puberty antedates the development of the sexual organs. The thyroid secretion is increased in virtue of this hypertrophy, and the surplus is used for the growth of the genital apparatus, of which it is only a corollary. The initial cause of infantilism is dysthyroid in nature, and complete myxedema is the extreme degree of thyroid degeneration. Dysthyroidia, according to its degree, produces infantilism in children, the stages being: simple obesity, rachitis, chondro-fetal dystrophy, infantilism. The fact that dysthyroidia and infantilism have the same etiology is proven by the coexistence of the different types of infantilism in the same family, by thyroid lesions in the parents (Basedow's disease, thyroid asthma), and by the therapeutic effect of the ingestion of thyroidin.

Jaques, W. K.: The Associate Infections of Scarlet Fevers. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 25. 1899.)

The author has examined all his cases of scarlet fever for the coccus described by Dr. J. W. Class, which is present in the scales and mucus taken from such cases. He has found it invariably present. In three cases the diagnosis was thus made before the appearance of the rash. The great frequency of a

combined infection of scarlet fever and diphtheria makes an early bacteriological examination imperative in every case exhibiting the symptoms of either trouble. The knowledge thus gained will often materially aid the physician in successfully treating his case.

Yonge, Eugene S. : The Relationship of Membranous Inflammation of the Nose to Diphtheria. (*The Practitioner*. Vol. lxiii, No. 6.)

Membranous rhinitis possesses the important claim of an undoubted relationship to diphtheria. It may be defined as a subacute or chronic affection of the nose, characterized by a fibrinous or membranous exudate on the mucous membrane of one or both nares. The exudation presents the anatomical features of a false membrane, being imposed upon the epithelium, without, as a rule, involving to any great degree the deeper tissues. The membrane rarely extends to the throat; constitutional symptoms are slight and the course of the affection prolonged, lasting, it may be, six or eight weeks or more. Clinically, therefore, the disease is unlike true diphtheria; but a bacteriological examination reveals, in the majority of instances, the Klebs-Löffler bacillus in various degrees of virulence. The disease, moreover, has been traced from cases of pharyngeal diphtheria, and proved to be infectious, either reproducing itself or a form of sore throat. In certain instances, on the other hand, the most careful search fails to reveal the Klebs-Löffler bacillus, and there is no history of infection. The difficulty of giving the exact form of the disease is increased by the fact that membranous rhinitis may follow cauterization of the nasal mucous membrane. The authorities who have written on the subject seem to be at variance as to its cause and virulency. From the evidence of observers it seems logical to conclude that at least some instances of membranous rhinitis owe their origin to the specific organism of diphtheria; and, conversely, if we base our diagnosis on the discovery, or the reverse, of the Klebs-Löffler bacillus, that other cases are undoubtedly non-diphtheritic in their nature.

A girl of eleven years came under observation with excessive blocking of the nose and with a nasal discharge. No history of infection, either by scarlatina, diphtheria, or measles, could be elicited. The condition began fourteen days before

admission. The child appeared to have a severe "cold in the head." Both nostrils were found to be filled with a thick, whitish, non-offensive discharge which, on being wiped away, revealed a thin, pearly, friable membrane covering the septum and turbinated bodies as far back as a view could be obtained. Where the edge of the new formation could be seen, it was observed to be skirted by a narrow red areola. The membrane was easily rubbed off, but bleeding followed the manipulation. The pharynx and nasopharynx were unaffected. There was some slight swelling of the cervical lymph nodes on both sides but no tenderness of these structures. Temperature was low, the pulse 84. There was a trace of albumin in the urine. The child, while somewhat anemic, did not appear to suffer severe constitutional symptoms. An examination of the membrane did not disclose the Klebs-Löffler bacillus. Two days later an examination of a second piece of membrane resulted in the same report. The only treatment employed was the intranasal application of warm solutions of bicarbonate of soda, borax and carbolic acid. The membrane gradually peeled off and entirely cleared up in about one month from the onset of the disease. There was no paralytic sequela, and, so far as could be determined, no infection of other individuals occurred.

The disease, which occurs in children and adults, may be ushered in by chilly sensations, or even, more rarely, by a definite rigor which is followed by a general febrile condition; and in children the fever persists in a mild degree throughout the illness. Symptoms of acute rhinitis rapidly supervene, indicated by swelling of the nasal mucous membrane, watery discharge, stenosis of the nasal passages and sneezing. The dry stage of acute rhinitis is omitted and the discharge at once commences to flow. In about three days a membrane will form; it extends backward a variable distance and may even embrace the throat, though its extension beyond the nose is quite exceptional. The nasal stenosis becomes very severe and is associated with headache and loss of smell. The duration in children is three to six weeks or more, and a recurrence may occur. The presence of albumin in the urine may not have a positive significance, as it has been known to appear in pseudomembranous tonsillitis. The presence or absence of the Klebs-Löffler bacillus appears to make no difference in the clinical course of the membranous rhinitis. In primary nasal diphtheria the disease, which is said

to occur in about two in a thousand cases, is apt to run a markedly malignant course. Constitutional symptoms are grave, the membrane is not limited to the nasal cavities so strictly as in the instance of its more innocent congener. Glandular inflammation is usually very intense.

CONCLUSIONS.

It appears probable—

(1) That membranous rhinitis (this term being understood not to include primary nasal diphtheria), is commoner than is usually supposed, cases being overlooked owing to the mild constitutional symptoms, or regarded as catarrhal rhinitis, etc.

(2) That the disease may occur in one or two forms, which concur in the local appearances, the prolonged course and the mildness or absence of constitutional symptoms, but differ in the presence or absence of the Klebs-Löffler bacillus and in their power of infection.

(3) That the form associated with the Klebs-Löffler bacillus is considerably more common than the simple form and is a mild local manifestation of diphtheria, differing sharply, however, from the usual form of primary nasal diphtheria.

(4) That, inasmuch as the two forms of membranous rhinitis are clinically indistinguishable, a bacteriological examination should be practised in every case, and isolation of the patient carried out, at least until the result of the examination is made known.

Adams, E. B.: A Case of Tetanus Successfully Treated with Antitetanic Serum. (*Philadelphia Medical Journal.* Vol. iv., No. 27.)

A German boy, aged twelve years, in good general health, wounded on palm of his left hand near the root of the third finger, by the discharge of a blank cartridge in a toy pistol. The wound was thoroughly cleansed with 1-1000 mercuric chlorid solution, paper wad was removed, and after repeated syringing a cotton drainage was inserted and the bandage applied. There was nothing special in the symptoms during the next thirteen days, except rather free suppuration. Thirteen days after the injury he had some tenderness above his elbow, and there was found to be an enlarged and tender lymph node at the inner border of the biceps, two inches above the elbow. This was opened but did not show any pus. The wound in the palm of the hand was in favorable condition and nearly healed. That night his temperature was 103.2° F. He had no stiffness of the muscles of the throat or jaw. He could not open his

mouth quite as wide as he should. On being requested to drink some water, he seemed to choke. The following day he had three violent spasms. The facial and throat muscles became tense, the corners of his mouth drew down and his head was drawn back slightly. He could open his teeth hardly one-quarter of an inch, and his clothes and body were fairly drenched with perspiration. He complained between spasms of pain and tenderness in his neck and throat, and also of his tongue, which he had bitten during his attacks. Ten c.c. of the anti-tetanic serum were injected hypodermically in the lumbar region; two hours later 10 c.c. more; two hours after that 20 c.c., and later 10 c.c., making 50 c.c. in twelve hours. This apparently controlled the severity and frequency of the attacks. The spasms were tonic in character, varying in length from fifteen seconds to three or four minutes, coming irregularly, sometimes at intervals of five, ten or fifteen minutes. On the second day he received 20 c.c. of the serum; on the third 40 c.c.; on the fourth day 30 c.c.; on the fifth, the last day that it was used, he had 10 c.c., making fifteen injections of 10 c.c. each, 150 c.c. in all. The highest temperature recorded during the disease was at its onset, as above stated. After that it ranged between 99.4° and 101.4° . The pulse ran from 100 to 120 per minute, dropping on the seventh day abruptly to 70, when his temperature dropped to 97.6° .

On the second, third and fourth days the posterior cervical and dorsal muscles were affected. The only nourishment was milk. The first three or four days deglutition was difficult, but his teeth at no time were quite closed; the spasm in the throat was extremely painful, so much so that only when he became thirsty would he attempt to drink. On the night of the third day he had 10 grains of soda bromid every hour, four doses. It did not have any perceptible effect. This was the only drug administered during the whole course of the attack. Sixteen days after the onset of the attack he was entirely well.

SURGERY.

Marshall, E.: An Unusual Accident. (*The New York Medical Journal.* Vol. lxx., No. 21.)

A boy of twelve years was caught in some machinery that tore away the arm, the scapula and over half of the clavicle of the right side. The subclavian artery was torn and was ligated. The parts were thoroughly cleansed with a bichlorid of mercury solution, 1-5000. Silk was employed for ligature and sutures.

Union was good and the temperature did not go above 100.4° F. A Röntgen ray photograph thirty days after the accident showed the absence of the bones of the right upper extremity. The boy is able to carry his head well and does not incline it to the left.

Morton, Charles A.: A Case of Abdominal Nephrectomy for Renal Sarcoma in a Young Child. (*British Medical Journal.* No. 2040. 1900.)

A baby eighteen months old was brought under observation because her mother had noticed blood trickling from the vaginal orifice. Later distinct hematuria was noticed and an abdominal swelling appeared.

Under chloroform a large lobulated mass was felt on the left side. The whole mass was movable and could be pushed backward into the loin. It consisted of two parts, one coming forward and the other down into the iliac fossa, but both connected with another mass in the renal region. No change in the other kidney. The urine was found to contain only a few red corpuscles. When the operation was done the tumor was found to consist of numerous lobules of various sizes, very soft and elastic. The growth was as large as a good-sized cocoanut and consisted of three main masses. One had projected across the median line of the abdomen, another had extended into the iliac fossa, and the third into the pelvis. A microscopic examination showed the tumor to be a round and spindle-celled sarcoma mixed with well formed gland tissue, an adeno-sarcoma. The patient was discharged a month after the operation in good health.

Two months later she was reported to be emaciated, to have a loss of appetite and there was some crepitation at the base of the lungs, and she gradually failed and died about six months after the operation.

The autopsy showed that there was no local recurrence of the growth but the lungs were full of minute tubercles, the mesenteric lymph nodes were enlarged and caseous in parts. The right kidney was found to be the size of the adult organ.

Broca, A.: Acute Traumatic Arthritis of the Knee in Children. (*La Presse Médicale.* No. 11. 1900.)

A needle prick on the right knee, in a previously healthy little girl, was followed rapidly by pain, swelling, fever, and fluid in the joint. Arthrotomy was done, and seropurulent

fluid evacuated. Staphylococci were found in the pus. The knee remained stiff and slightly flexed, but was finally completely cured by an extension apparatus. The only lesion which remained was a slight hyperostosis of the internal condyle of the femur.

From this and other cases Broca advises arthrotomy and not resection in cases of suppurative arthritis of the knee in children, whatever may be the origin of the condition. The incision should not be made anteriorly, but on each side of the joint.

Meriwether, F. T. : A Study of Sixty-one Cases of Appendicitis, Thirty of Whom were Operated on. (*Louisville Monthly Journal of Medicine and Surgery.* Vol. vi., No. 38.)

Of the thirty cases reported five were children under fourteen years of age—three males and two females; four were recurrences; one was the third attack; one had general peritonitis which ended fatally. The others were saved, the peritonitis being of a slight local nature. In the fatal case the result was probably due to delay on the part of the family before allowing operation. Constipation was present in three cases and diarrhea in two. The appendix was gangrenous in two cases, and strictured and eroded in the others. The McBurney incision was used in all the operations. The author makes a plea for surgical interference in all cases.

Ormrod, F. : Imperforate Anus. (*British Medical Journal.* No. 2038. 1900.)

A male child was found, on the day after birth, to be passing fecal matter by the urethra. The anus was imperforate. A deep incision was made on the fourth day, after giving time for the rectum to become distended, with the hope of finding the bowel. This did not succeed. A large-eyed probe was passed through the urethra and its point cut down upon in the anal wound, a narrow strip of silk was threaded and drawn through the anal wound and the ends tied. This remained for one week. The anal wound was plugged to keep it open. The fecal matter passed by the urethra gradually diminished and after a time ceased. The child was under observation for more than a year. The result of the operation was to make a cloaca, which was less objectionable than an artificial anus.

HYGIENE AND THERAPEUTICS.

Villy, F.: **The Present Aspect of the Antitoxin Treatment of Diphtheria.** (*The Medical Chronicle*, Third Series. Vol. ii., No. 4.)

The author gives the results as obtained from the annual reports of the Metropolitan Fever Hospitals. During the years 1888-1894 there were 11,598 cases of diphtheria treated, with a mortality of 30.3 per cent. During 1895-1898, 20,382 cases were admitted with a mortality of 18.4 per cent. The increase in the number of cases is probably due to the introduction of bacteriological diagnosis.

Not only has the case mortality in post-scarlatinal diphtheria decreased, but the total mortality as well. Among laryngeal cases and after tracheotomy in post-scarlatinal diphtheria the mortality has fallen from 23.3 per cent. in 1896 to 6.1 per cent. in 1898.

A dosage of 2,000 units is sufficient for an ordinary mild case on the first day, but when seen later, or when it is progressing rapidly, a larger amount is needed. In severe cases from 8,000 to 12,000 units is given when the patient is first seen, followed by another 2,000 to 8,000 units every twelve hours, for the next twenty-four or forty-eight hours or longer, according to the gravity of the case. A total amount of 20,000 units is not uncommon.

The antitoxin should be used as early as possible and in sufficient amount to produce a distinct reaction in twelve hours, if such reaction be not apparent, a second or third dose must be given, till the effect is observed.

Suppression of urine is almost unknown. Albuminuria of a mild and transient nature appears in a few cases, from .5 to 1.5 per cent., about the time of the appearance of the antitoxin rashes, but is of no serious consequence. Paralysis generally follows the more severe cases.

A rigor, followed by a rise of temperature and the appearance of a general urticarial rash occurs in some cases. It is more common in cases of relapse of the disease and receives a second injection several weeks after the subsidence of the primary attack. Antitoxin rashes generally appear about the tenth to fourteenth day after injection. Three forms occur. Erythematous, urticarial, and one closely resembling that of scarlet fever. The erythematous form may, though rarely,

assume a morbilliform appearance. In addition to these late rashes a purely local eruption may come out in the neighborhood of the seat of the eruption. This generally consists of a few wheals which appear in the second, third or fourth day. Desquamation may follow an antitoxin rash in cases who have shown no sign of scarlet fever.

Pyrexia following antitoxin is less common than are rashes. As a rule, it is raised only for a few hours and gives rise to no special symptoms.

Joint pains are still more rare, and pass off without treatment. They are most common in and about the knees, but may be generalized. There are no physical signs.

The percentages of occurrence are: Rash, 35.2 per cent.; pyrexia, 19.8 per cent.; joint pains, 6.5 per cent.

These complications are due entirely to the serum, according to the concentration. The antitoxic element is not responsible, as pure horse-serum will produce the same effects. By heat the serum can be rendered harmless in these respects without injuring the antitoxic property in any degree. The production of abscesses at the point of injection is from a lack of cleanliness and proper antiseptic precautions.

Jaques, W. K. : Formaldehyd Disinfection. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 2.)

To the power of this gas to penetrate the cell wall of bacteria and alter its properties are we indebted for its germicidal qualities.

For use in the sick room the simplest and most effective way is to put two tablespoonsful of formalin into an earthen dish and pour into this a pint of boiling water. This dish may then be placed over a lamp or chafing-dish and kept below the boiling point. Near this point the gas is driven off in the greatest abundance. Above this evaporation takes place, with the production of paraform. By modifying the heat the amount of gas in the room can be controlled. It should be kept just below the point of irritation. As the patient becomes accustomed to its presence it becomes less irritating. It does not interfere with other remedies and can be used when the patient is asleep.

The advantages of formaldehyd disinfection over all other methods are numerous. Although a destroyer of odors, it has scarcely any odor. It does not attack and injure metals, as does

sulphur, and there is no danger from fire. It attacks the weakest point of our pathogenic enemies' armor. It is not, however, a destroyer of lice, bed-bugs and other vermin. Neither will it injure the parasites that infest plant life. It can only be depended on to destroy pathogenic germs whose structure permits sufficient penetration to alter their protoplasm, and for this purpose it has no equal as a disinfectant.

Concetti: Organotherapy in Renal Disease of Childhood. (*Bulletino della R. Accademia Medica di Roma; Archiv für Kinderheilkunde.* B. xxviii., H. 3 and 4.)

Concetti reports seven cases of nephritis in children treated with excellent results with Knoll's renaden. Four cases of acute and three of chronic nephritis were treated. All cases had albumin (3 to 6 per cent.); in six the daily quantity of urine was diminished; microscopic examination revealed the usual evidences of nephritis. While in two of the acute cases convulsions were present. The etiology of all the acute cases was not clear, while two of the chronic cases were scarlatinal and of two years' duration, the third had lasted nine months and had followed a severe attack of pertussis. Renaden was administered to these cases in daily doses of thirty grains, which was sometimes increased to sixty grains to be diminished finally to fifteen grains daily. In all cases the usual treatment of nephritis was also employed. Improvement was rapid and all were cured after a variable time. Concetti's explanation of the action of the remedy is based on Brown-Sequard's theory of an internal secretion of the kidney. This secretion is interfered with in inflammation of that organ and renaden supplies this secretion to the body. As, according to his theory uremic symptoms are due not so much to diminished excretion of urea, etc., as to arrest of the internal secretion, he advises renaden especially in uremia. He assumes also a specific action of the remedy on the diseased kidney tissue.

Brower, Daniel R.: Chorea and Allied Diseases. (*The Medical Standard.* Vol. xxiii., No. 2.)

After showing some cases of chorea at a clinic and describing the varieties, their treatment was considered. It is a rare thing to find a case of chorea that does not yield to some preparation of arsenic, the preference being for the liquor sodii arsenitis (Pearson's solution), three drops to be given after each meal. The liquor potassii arsenitis (Fowler's solution) will accomplish

the same result, but preference is given to the sodii arsenitis as less apt to disturb the stomach in children. The use of the arsenic preparation should be increased every third day by a drop until the choreic movements are lessened or there are some of the poisonous effects of the drug. Sometimes very large doses are necessary, as the therapeutic effects are very close to the toxic effects, and administration must be carefully made. When the necessary effects are noted, simply diminish the dose, do not discontinue the medicine. Antirheumatic remedies may be required, also preparations of iron, such as the syrup of the iodids. For young girls at the time of development the fluid extract of cimicifuga is an invaluable remedy. Static electricity may be of benefit. Galvanization will sometimes answer very well. In addition to the above measures, these children should be treated by the rest cure. They should be kept in bed constantly. This, unfortunately, is not always practicable in the ordinary household, but in the early part of the treatment rest should be secured for at least several hours a day. Let the room be dark and quiet. A few hours a day of this rest cure is a very valuable aid in the treatment of these cases. Violent cases must, of course, be kept in bed all the time. In some of the cases where the choreic movements continue at night, doses of chloralamid, trional, sulphonal or chloral hydrate may be used.

Klebs, Edwin: *Diphtheria.* (*The Journal of the American Medical Association.* Vol. xxxiii., No. 25. 1899.)

The author mentions some observations made in Zurich in 1884. In a school in which the boys and girls were separated by an aisle, principally the girls were attacked. This he attributed to the long hair they were wearing as he proved that children sitting behind others, in whose families diphtheria had broken out, were attacked, as were boys who were forced by lack of room to sit among the girls.

Animals are common carriers of infection.

The dust of the street is a source of danger as are open garbage boxes. It is interesting to note that the wind does not carry the infectious material to any great distances but only to limited circumscribed areas.

For prophylaxis he recommends chinisol and antinosin. Early injections of antitoxin should be used for those already attacked. The deleterious action of the serum can be overcome by subjecting it to a temperature of 60° C. which destroys the

globulicide substances without affecting the antitoxic qualities. The needle should be only pushed into the tissue and care taken not to wound a blood vessel. If blood escapes a new puncture should be made. Only a small quantity should be injected at first and the heart watched for a few minutes and then more injected.

In taking cultures for bacteriologic examination the culture should be taken from the edges of the membrane and from the adjoining seemingly healthy portions of the mucus membrane. In the centre of the membrane it frequently happens that no bacilli can be found, these having been thrown off. The method of staining shown by Dr. Robert F. Zeit is preferred. The dried cover-glass preparation is stained in methylene-blue concentrates solution in 5 per cent. borax, and decolorized with 1 per cent. Bismarck-brown for three minutes. All true diphtheria bacilli then show the chromatic bodies very darkly stained, whereas the other substance of the bacilli is stained yellow. Repeated blood examinations are recommended to watch the progress of the formation of the polynuclear leucocytes which is impeded by the toxins. Pilocarpin injections and cold bathing are suggested to promote leucocytosis.

Local applications of chinisol, 1-1000, and antinisin in 2 per cent. solution, to the nose and throat are highly recommended. Antidiphtherin may also be used locally.

Munn, Wm. P.: The Decrease in Mortality of Diphtheria Since the Introduction of Treatment With Antitoxic Serum. (*The Journal of the American Medical Association.* Vol. xxxiii., No. 25, 1899.)

The results of the antitoxin treatment in Denver, Col., during the four years 1895-1899, are given. The pre-antitoxin period 1889 to 1894, inclusive, gave 2,272 cases with 827 deaths, or a mortality of 36.4 per cent. During the four succeeding years there were 1,177 cases with 136 deaths, a mortality of 11.56 per cent. He further divides the antitoxin period by giving cases treated with and without antitoxin, with the results of 607 cases treated and 30 deaths, a mortality of 4.96 per cent. against 570 cases untreated and 106 deaths, or 18.6 per cent. or four times as many died when antitoxin was omitted from the treatment as when it was used.

To sum up the above in the past four years, Denver had almost half as many cases of diphtheria as it had during six preceding years, with but one-sixth as many deaths from the disease.

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Original Communications.

A CASE OF RHACHISCHISIS.*

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Rhachischisis is one of the principal forms of congenital defects of the spine. It is characterized by a deficiency of the vertebral arches either complete or partial. The cord is rudimentary and is split open so that the endothelial lining of the central canal is exposed. This may occur in the whole of the cord or in part of it. The condition is of interest pathologically rather than clinically. The following case of rhachischisis came under my notice at the Infants' Hospital.

A girl three days old was admitted to the hospital on February 14, 1900, in the service of Dr. John Dane. The history of the case was that the delivery had been with forceps, that the infant was viable, and that it had taken no food since birth. A physical examination showed the head to be of normal size. The anterior fontanelle was widely open. There was a caput succedaneum on both sides. The face was flattened, the chin was retracted and was held in forced position with the occiput resting on the upper dorsal spine as represented in Fig. 1.

The front of the neck was bulging. The chest and abdomen were apparently normal. On examining the posterior surface of the infant a cleft was found in the posterior vertebral arches extending from the first dorsal to the third lumbar vertebra, measuring one and a half inches in the middle and narrowing evenly on both sides. The intervening space in its lower part was covered with good skin. Above this in place of the skin there was a parchment like membrane, and an area in the upper part of the cleft one and a half inches long and covered with granulations. No bulging or sense of fluctuation was

* Read before the American Pediatric Society, Washington, D. C., May 1, 2 and 3, 1900.

detected in this cleft. Fig. II. shows this posterior aspect of the infant just described.

The extremities were normal, but were held rigidly with a spasm of all the muscles which, although it could be overcome by slight force, quickly returned. The patellar reflexes were absent. The eyes were open nearly all the time. At long intervals the infant gave a slight cry. It was unable to swallow. The temperature was subnormal. An ophthalmoscopic examination showed both eyes to be normal. On February 18th, four days after entrance, and seven days from the time of birth, the infant died without any especial symptoms.

Before giving a description of a vertical section of the head and thorax made in this case, a few words regarding rhachis-



Fig. I.—FLATTENED FACE AND RETRACTED CHIN IN A CASE OF RHACHISCHISIS.

chisis in general may be of interest. Dr. Augustus Thorndike has written and published such an excellent article* on rhachischisis that little is to be said of the condition outside of what he has described, and I shall therefore freely quote from his description. I am also indebted to him for the solar prints of a number of cases of rhachischisis selected from twenty skeletons of this condition which are in the Warren Medical Museum connected with the Harvard Medical School in Boston.

This defect of the central nervous system is due to an arrest of development, or a persistence of early embryonic conditions, and to certain later processes, such as the distension of cavities by transuded fluid (Thorndike). It is often associated with spina bifida, which is distinguished from rhachischisis anatomically by the fact that in spina bifida the spinal

* Transactions American Orthopedic Association, 1899.

cord has been properly formed. Rhachischisis has its counterpart in the skull and brain which are represented by anencephalus (complete absence of the brain), or derencephalus, which corresponds to partial rhachischisis. The condition of total rhachischisis occurs much more frequently with anencephalus than without, and especially occurs in the still-born, or those that live a very short period. In many cases the infant is premature.

TOTAL RHACHISCHISIS. —Fig. III. represents anencephalus with total rhachischisis and shows the short neck, upturned face, and



Fig. II.—POSTERIOR VIEW SHOWING SURFACE COVERED WITH GRANULATIONS.

mane-like growth of hair on the skin of the nape and upper back.

Here the cranial vault is absent, and the base of the skull and the centre of the back is covered by an irregular band of dark red tissue looking like mucous membrane. This is what is called the area medullo-vasculosa. Outside of this is the area epitheliodea shading off into the true skin. Outside of this area epitheliodea can be seen a series of small elevations caused by the ends of the cleft arches under the skin. There is also a narrow line of long fine hair extending about half way down the back and looking like a divided mane.

A longitudinal section made from an eight months' fetus

with total rhachischisis and anencephalus with a posterior encephalocele is represented in Fig. IV. and shows the abnormal curves of the spine which occur in these cases.

These abnormal curvatures, both antero-posterior and lateral, are very common. In this case a microscopic examination made by Dr. Thorndike is described by him as follows:



Fig. III.—ANENCEPHALUS WITH TOTAL RHACHISCHISIS.
SHOWING THE SHORT NECK, UPTURNED FACE, AND MANE-LIKE
GROWTH OF HAIR ON THE SKIN OF NAPE AND UPPER NECK.

(A. Thorndike.)

It showed the area medullo-vasculosa to be made up of large sized blood-vessels, nerve fibres, neuroglia tissue, and a few ganglion cells. The superficial covering is an epithelial layer of cells, the endothelium of the central canal; from the ventral side the spinal roots pass to the dura and the foramina,

and there was a covering of vascular pia mater to the nerve tissue on its ventral side; there was also a glistening flat membrane on which it lay, the dura. According to Thorndike, the vertebral column frequently presents other deformities besides absence of laminæ and spines.



Fig. IV.—LONGITUDINAL SECTION THROUGH EIGHT-MONTHS' FETUS WITH TOTAL RHACHISCHISIS, SHOWING ABNORMAL CURVES OF SPINE.
(A. Thorndike.)

In referring again to Fig. I it will be noticed how in these cases we find a very short back and almost no neck, the ears frequently touching the shoulders, and the face looking upward, instead of forward, the frog-like appearance described by various observers. This retracted position of the head is caused

by a sudden sharp antero-convex curve taken by the upper dorsal and cervical spine. The condition of anencephalus alone is not sufficient to produce this curve.

Fig. V. shows the great deformity of the thorax from an antero-posterior curvature of the dorsal and cervical spine.

Fig. VI. shows a lateral curve and an abnormal anterior cervical curve in a case of anencephalus and total rhachischisis.

Quoting Thorndike's description again, the spinal cleft is usually symmetrical and is due to absence of the spinal processes and of both laminæ, and sometimes the transverse processes are not formed. Occasionally the bodies are cleft, as well as the arches, so that there is an anterior and posterior split in the spine; the two halves of the spine thus divided separate from each other and unite below the cleft.



Fig. V.—ABNORMAL FORWARD CONVEX CURVE OF DORSAL AND CERVICAL SPINE IN THE SKELETON OF A CASE OF TOTAL CRANIO-RHACHISCHISIS. (WARREN MUSEUM.)

(A. Thorndike.)

PARTIAL RHACHISCHISIS.—Partial rhachischisis means that the formation of the cord is incomplete. The condition is marked by the interposition of an area medullo-vasculosa where the cord fails to form. It is often associated with other deformities and may occur in the premature and in cases that die soon after birth.

According to Thorndike, the abnormal curves of the vertebral column are present in the specimens of partial rhachischisis, but he has not noted such extreme deformity as in the cases of total cleft preserved in the Warren Museum. Any region of the spine may be affected, and sometimes there may be clefts in two different parts of the spine. The cleft, however, is always said to involve four or five vertebræ, sometimes

more. Thorndike states that not infrequently in rhachischisis the area medullo-vasculosa is divided into two symmetrical halves, and is probably due to a failure of the two lateral halves of the undeveloped cord to unite. This condition is called diastematomyelia. According to Recklinhausen's description of a case of partial rhachischisis (*Virchow's Archives*, Vol. cv.) the skin is lacking over a circular area in the centre of the back, which is a typical area medullo-vasculosa, lying as a broad, dark-red circle surrounded by a smooth, glistening membranous ring, which in turn merges into the true skin of the back. The same structures are present, as in complete rhachischisis, but at the upper and lower end of the area are slight depressions, the cephalic and caudal poles marking the points where the central canal of the cord begins to be a closed tube above and below. Recklinhausen also describes how often an accumulation of fluid in the meshes of the pia beneath raises this area medullo-vasculosa upon the top of a quasi cyst, where it lies spread out and exposed to the air.

Having considered these forms of rhachischisis in general, I will now continue the description of the case of partial rhachischisis without anencephalus of which I have already given the clinical history.

After death the body was placed in a 10 per cent. solution of formalin and was hardened for three weeks. A median longitudinal section was then made by Dr. Thorndike through the entire body, and the right side of this section is represented in Fig. VII.



Fig. VI.—ANENCEPHALUS AND TOTAL RHACHISCHISIS. SLIGHT LATERAL CURVATURE AND ABNORMAL ANTERIOR CURVE OF NECK. (WARREN MUSEUM.) (A. Thorndike.)

The viscera, apart from the nervous system, showed no abnormality beyond distension due to the deformity of the bones. The esophagus was forced to the left, and restricted from pressure of the bodies of the upper dorsal vertebræ. The

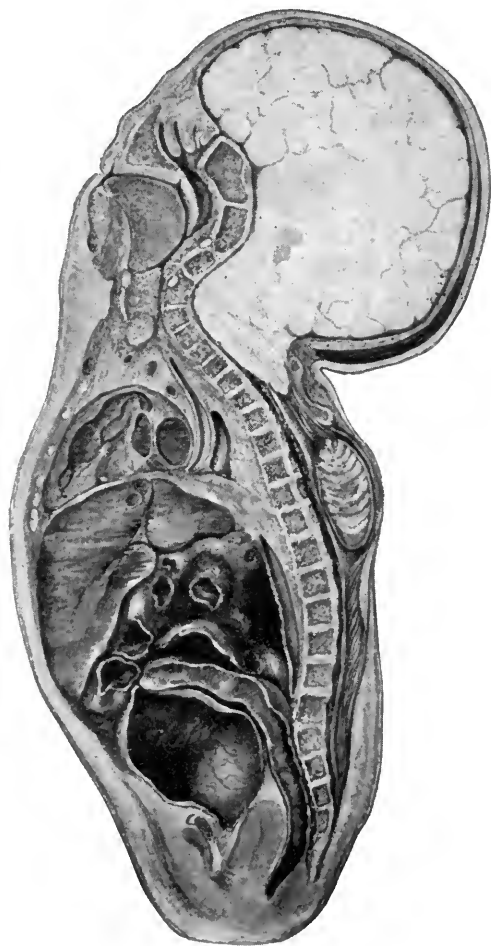


Fig. VII.—LONGITUDINAL SECTION OF A CASE OF RHACHISCHISIS.

bladder was widely distended. The cartilaginous body of the atlas was found articulating with the odontoid process, which together with the body was ossified and well developed. The bodies of the remaining cervical vertebræ were found to be fused with some evidence of cartilaginous septa. The axis of

the cervical spine, as shown in the figure, is directed backward and upward at right angles to the direction of the upper dorsal spine. There were twelve dorsal, five lumbar, and six sacral bodies (vertebræ) and a coccyx. The arches were wanting below the eighth dorsal vertebra. The skull was apparently well formed. The foramen magnum was as large as a silver dollar. The section of the brain made by Dr. E. W. Taylor passes nearly through the median portion of the brain which was very poorly hardened. The convolutions were present, and the cerebrum was approximately of normal size. Neither the cerebellum nor pons are to be found in the cranial cavity. The pons was found lying in the widened cervical canal below the foramen magnum, and was connected with the cerebrum by brain substance. Considerably below this point, and lying in front of the area medullo-vasculosa, the cerebellum was found and was connected with the brain by an attenuated peduncle. Beneath the cerebellum and on one side of it lay the cord which lost its identity in the area medullo-vasculosa. Springing from the lower part of this area is the lumbar enlargement of the cord and the nerve roots arising from it.

197 COMMONWEALTH AVE.

Relative Toxicity of the Urine in Children and in Adults.

—Ettore Santagelo states (*Il Piliclinico*, December 1, 1899,) that in healthy adults the urotoxic coefficient, or the amount of urotoxins emitted during the twenty-four hours for each kilogram of body weight, is between 0.2 and 0.3. In healthy children the coefficient is between 0.3 and 0.4. The urine of children is less toxic than that of adults, but only absolutely so, for children in the twenty-four hours manufacture per kilogram of their body weight a larger amount of toxic principles than do adults in the same period of time and for the same weight. The physiological effects produced upon animals by the urine of healthy children are the same as those caused by the urine of adults. The toxicity of either adult or infantile urine is in inverse ratio to the total amount excreted in twenty-four hours, and in direct relation to the specific gravity, the depth of color, and the per cent. of urea of the urine. This points to the evident toxicity of urea. The toxicity of the urine in children suffering from ankylostomiasis differs but slightly from that of healthy children.—*Medical Record.*

A FATAL POST-OTITIC CEREBRAL ABSCESS WITH AMNESIC APHASIA.*

BY J. HENRY FRUITNIGHT, M.D.,

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The case to be narrated well illustrates how sometimes the extent and gravity of a pathological lesion is not reflected in the clinical history of the case. It again teaches the lesson how an otitis or an otorrhea neglected or intermittently treated at the outset, does sometimes terminate fatally. It also emphasizes the fact that a portion of the laity do not yet realize the gravity of this affection, and it behooves us to continue our efforts in educating them in its possible dangerous complications. The cases which have turned out as failures, which might have become successes if the conditions present had been better understood, or if interference had been undertaken earlier, are just as instructive, and possibly more so, than cases which have a favorable termination. This is the reason why it is deemed worthy that this case should be put on record.

Fannie W., twelve years old, native of New York City, came under my care, December 10, 1899. In June, 1898, while in the country, she suffered severely from an acute otalgia of the left ear. She consulted a well known physician of the place, who diagnosticated otitis media with an abscess. He made a paracentesis of the drum of the left ear, letting out quite a large amount of pus. The doctor gave the mother instructions how to proceed in the treatment of the resulting otorrhea. This treatment the mother failed or neglected to continue, though warned by the physician that she must keep it up until the discharge should cease. When I asked her why she had not done so, she replied: "She had done it for several weeks and as the discharge did not seem to stop, she had become tired and the child had resisted; and besides it was only a running ear, and a friend of hers had had such a 'running ear' for the past seventeen years, and no harm had come in consequence."

*Read before the American Pediatric Society, Washington, D. C., May 1, 2 and 3, 1900.

Since then the child had had more or less discharge from the ear, being a period of about eighteen months. Several weeks before I was called, she suffered from attacks of severe frontal headache with nausea and vomiting, for which she was treated by a neighboring physician. During these four weeks she was more or less indisposed, but able to be up and about.

When I first saw the patient her temperature was about 100° F.; pulse, 98; and she complained of frontal headache. There was some prostration; she had occasional chilly sensations and nausea; there was a scanty discharge from the left ear.

The clinical diagnosis was, deep mastoid caries, possibly cerebral abscess and beginning meningitis. I at once suggested a consultation, telling her friends that an operation was necessary, but this was refused at the time because the mother considered the affection a trifling one.

On the evening of December 17th, she was seized with violent convulsions, which continued for six hours. They were finally controlled by the use of rectal injections of chloral hydrate, inhalations of chloroform and hypodermic injections of morphin. The prognosis was most unfavorable, but to my surprise the patient still lived on the following morning. I then insisted upon a consultation, and in the afternoon of that day, Dr. Herman Knapp, of New York, saw the patient with me. At the time of consultation the patient was found to be excited and very much frightened, but conscious and rational. Her temperature was 101° F and her pulse 120. The movements and sensibilities were normal.

Dr. Knapp made an ophthalmic examination of the eyes which revealed that the pupils, the backgrounds of the eyes, the sight and the *field of vision* were normal. There was very little secretion in the left ear. Dr. Knapp also made an otoscopic examination of the auditory canal, but its fundus could not be clearly seen. There were no granulations present, nor was there any sagging of the posterior part of the wall. The mastoid was but little swollen and not particularly tender. The most interesting feature present was an optical amnesic aphasia or word-blindness. If an object were placed before her, and she were asked its name, she would become annoyed and say: "I know what it is, but cannot call it by name." When the name of the object was mentioned, she would repeat it at once and correctly. Thus, if a key were held before her, she seemed

perplexed and angered because she could not name it. When told its name, she would at once say: "Oh, yes, a key."

Dr. Knapp made a clinical diagnosis of "deep mastoid and epitympanic caries, epidural and cerebral abscess with beginning meningitis." The relatives were told that surgery alone could be of avail to save the child's life, and an operation should be performed without delay, as he considered the severe convulsions as a last warning. The consent of the relatives was then obtained. She was taken to the New York Ophthalmic and Aural Institute, and was operated upon by Dr. Knapp, at six o'clock in the evening, in the presence of Drs. Jordan, Nolte, myself and several others. Dr. Knapp very kindly furnished me the following description of the operation and also the record of the subsequent history and of the autopsy.

*"Operation:—*After the usual preparation an incision was made down to the bone, from the tip of the mastoid along the insertion of the auricle, as far as the zygomatic ridge. The bone surface, freed from the periosteum with a raspatory, was vascular, more in the lower than in the upper part. The skin lining the posterior and upper meatal walls was dissected from the bone and drawn out and forward with a strip of aseptic gauze passed along the bared bone, into and out of the ear canal. The mastoid, when opened, was found diploic, vascular, and very brittle. The posterior and upper walls of the bony ear-canal were chiselled away and the attic was laid bare. The latter was packed with cholesteatoma masses, which were cleanly removed.

Then the posterior cranial fossa was exposed by chiselling and curetting away all the carious bone that separated it from the body of the mastoid. The dura and the sigmoid sinus, open to view, showed no abnormality. There was neither epidural abscess nor external pachymeningitis.

After this the upper wall of the attic, which was carious, was removed and the dura of the middle cranial fossa exposed in an area 2.5 cm. by 2 mm. The dura was congested and also slightly uneven and dull. Near the posterior-medial corner of the exposed area I noticed in the dura a blackish, round spot of about 3 to 4 cm. in diameter, with a central depression through which I could introduce a probe 4–5 cm. into the brain, without meeting with any resistance or eliciting blood or pus on withdrawal. The latter condition and the late hour of the day determined me to interrupt the operation. The radical tympano-mastoid operation and the opening of both the middle and posterior fossæ having removed the source of the whole disease and relieved the brain from pressure, could be supposed to place the patient beyond immediate danger and in more favora-

ble circulatory and mechanical conditions for amelioration of the symptoms, and might produce a clearer indication of the location of the abscess, the presence of which in the temporo-sphenoidal lobe, to judge from the history, the word-blindness, and the characteristic black, perforated spot of the dura, could be assumed with a probability that was almost a certainty. The wound, therefore, was cleansed with aseptic gauze, the meatal skin-flap split horizontally, and the outer edge of the latter extended by two vertical incisions. The flap was pressed against the wound of the mastoid with sterilized iodoform gauze, the ear bandaged, and the patient put to bed.

December 19th.—Night quiet. Feels better; is rational. Names most objects at sight. Temperature, 101° to 102° F. Pulse, 110 to 120.

December 20th.—Still better. No word-blindness. Is cheerful. Temperature, 99.3° to 101° F. Pulse, 80 to 100.

December 21st.—Fails to name some objects she sees. Is quite rational. Appetite good. Temperature varying from 99.2° F., pulse, 80; to temperature 100.3° F., pulse 118. Dressing of wound changed; smells strongly.

December 22d.—Quite rational. Appetite poor. Nausea and severe headache. Dressing changed. Temperature, 99.3° F., pulse, 100; to temperature 101.3° F., pulse, 120. Morphia.

December 23d.—Sleep interrupted. Nausea. Severe headache. Anorexia. Temperature, 99° F., pulse, 96; to temperature, 100.8° F., pulse, 108. Quite rational. Wound clean.

December 24th.—In the morning, some nausea and vomiting, slight secretion. Severe headache. No appetite. Two A.M., temperature 97.4° F. At 5.30 A.M., temperature, 98.2° F., pulse, 80; 11 A.M., temperature, 98.3° F., pulse, 70; 9 P.M., temperature, 100.2° F., pulse, 60. In the morning, complained greatly of headache. Morphia. In the afternoon, slept soundly and felt pretty well; in the evening, headache and drowsiness.

This being the first day that the elevated temperature, the slow pulse, and the other symptoms had the character of a brain abscess, an operation was decided upon for the next day.

At 9.45 P.M. she suddenly gave a shriek, jumped out of bed, her face grew purple. At 9.50 she stopped breathing; face white; tongue protruded, and foam coming from the mouth. Death.

Autopsy (partial only allowed).—Wound clean; skull thin. The dura shows dark venous congestion. Very few adhesions of the dura to the anterior surface of the petrous bone, some also to the occipital lobe. The dura, as far as exposed by the operation, was thickened by granulations. The blackish, centrally perforated patch still well recognizable. After incising the dura, the blackish patch was found agglutinated loosely to the pia. There was no subdural exudation, and the soft membranes showed no conspicuous abnormality. The veins in the

sylvian fissures were much congested, the gyri and sulci darkened, the latter effaced, *i.e.*, only indicated by lines. The first temporal convolution looked tolerably healthy, the second slightly, and the third very much discolored. In the middle part of the temporal convolutions the brain substance was softened to the extent of 8.5 cm. in length and 5 cm. in height. The softening was immediately above the black patch, where the dura was perforated.

The right hemisphere showed no abnormality.

After the brain had been removed in toto, it was divided in the median line. At once a large quantity of thin puriform offensive liquid, with many small particles, flowed out from the third and left lateral ventricles. The walls of the ventricles were finely roughened. Temporally from the lateral ventricle a large abscess cavity was situated, surrounded by a dense white capsule, which was ruptured in front and toward the lateral sinus behind. It contained the same material as the ventricles. The capsule of the abscess was surrounded by a zone of softened brain substance varying from 5 to 15 mm. in breadth. The track of the probe which had been introduced into the brain could not be discovered.

After hardening in ormol the following conditions were ascertained:

Antero-posterior diameter, 185 cm. (seven inches). An abscess cavity occupied the middle of the temporosphenoidal lobe, situated a little more in the anterior part than in the posterior. It was surrounded by a dense, uniform, white capsule, the thickness of which varied from 0.5 mm. to 5 mm. It was perforated in two places: In front, the contents were mixed with the broken-down surrounding tissue; in the posterior medial wall, into the posterior outer cornu, the contents filling the lateral and third ventricles and mixing with the softened cortex of the adjacent posterior part of the temporosphenoidal lobe.

The inner dimensions of the abscess cavity were; Sagittal, 45 cm. (one and three-fourth inches); frontal, 26 mm. (one inch); lateral, 20 mm.

The inner surface of the abscess cavity was smooth, with some depressions here and there; in the neighborhood of the perforations of the capsule it was uneven and softened."

The symptoms certainly seemed to indicate a meningitis rather than an abscess, and the diagnosis offered by me was that of probable meningitis. Even after the operation the clinical history was not characteristic of cerebral abscess, because the usual combination of elevation of temperature and slow pulse usual in such cases was absent, excepting during the last twenty-four hours. It was, therefore, surprising that at the

autopsy neither a meningitis nor epidural abscess, but simply a cerebral abscess, was encountered. Very probably the thick capsule explains this. This thick capsule also proves that the abscess might have existed for quite some time, and it also accounts for its long quiescence.

Though this case proves the statement that the optical memory centre is in the temporosphenoidal lobe, it does not show its exact location, because the softened area was too extensive. Dr. Knapp, however, says, after hardening the brain, "That the cortex of the superior temporal convolution was not softened anywhere, and that of the middle convolution softened only at its lower border and in a small patch in its middle part, whereas the third convolution, both on its lower and lateral surfaces was most extensively softened."

Though optical aphasia and hemianopsia are frequently combined, it will be noted this was not so in this case.

Reasoning from the symptoms and course of the disease in the last month of the patient's life, we are justified in saying that the exacerbations of the trouble leading to the death of the patient was the result of the extension of the abscess beyond the boundaries of its capsule. Increasing inflammation produced the symptoms present in the meningitis and in the cerebral abscess, including the severe convulsions. At this time the perforation in the anterior part of the capsule took place, permitting part of the abscess contents to flow into the surrounding brain tissue, and later the secondary perforation into the ventricles caused the sudden death.

DISCUSSION.

DR. KNAPP.—This case is remarkable and very instructive. It is rare enough that we can make a diagnosis of brain abscess with certainty, and still rarer that we can know before the operation the location of the abscess. The symptoms in Dr. Fruitnight's case pointed much more to meningitis than to abscess. But the long duration of the disease made it probable that an abscess could have excited meningitis, and an operation might save the child's life. The operation of opening the mastoid extensively showed evidence of the presence of an abscess: namely, in the roof of the tympanum. The dura mater was not sufficiently diseased to have caused the trouble; but it

had a small spot with a central perforation, through which I introduced a probe almost two inches into the brain. The probe met with no resistance at all. It went through the tissue, which was soft, having not even the consistence of brain substance, and nothing came forth. This deceptive condition determined me not to go on with the operation. Had I tried to puncture the brain either with an aspirator or a knife, I might have struck the abscess, but it is quite likely that either instrument would have gone the same way as the probe did, and would have stopped or deflected on its way by the dense abscess membrane.

Brain abscess is not frequent. Meningitis is frequent enough, and thrombosis is still more so. Repeatedly have I gone into the brain when the symptoms of abscess prevailed, and the neurologist advised operation, but no abscess was found even at the autopsy. They were cases of meningitis, some even on the convexity of the frontal lobes.

The case reported by Dr. Fruitnight was evidently an old one, and there was considerable softening, but the capsule, which was very dense towards the ear, was broken anteriorly and posteriorly. The perforation in the anterior part evidently was the cause of the convulsions which the child had and from which it recovered rapidly when the operation had relieved the tension of the brain. The day after the operation the child was rational, talked, and recognized objects. On the fourth day she was not so well. On the fifth her condition was changeable. At 5 P.M. I saw her, she slept soundly. We determined to operate again the next day, but at 9 P.M. she suddenly expired from a perforation of the abscess into the lateral ventricle, as was demonstrated by the autopsy which I made the next day.

DR. CHAPIN.—I would like to call the attention of the Society to one of the phases of mastoid trouble in children in which the brain is not affected, but the pus surrounds the tip of the mastoid, burrows anteriorly and is seen in front of the ear. These are most puzzling cases. I saw recently a little boy five years of age. There was tenderness back of both ears. After the incision of the drums the temperature dropped from 103° F. to about 101.5° F., and stayed there a day or so. There was still tenderness, but the temperature in a few days dropped to normal. Later a swelling appeared, but the temperature was still normal. Then I called in an aurist and we decided it was best to operate. We found some little broken down tissue and with an aspirator we found an abscess in front of the ear. I think it is well to remember these cases and look also in front of the ear in cases in which we have mastoid disease.

DR. FRUITNIGHT.—I would again specially call attention to the absence of low pulse and high temperature, usually encountered in cases of cerebral abscess.

THE TREATMENT OF HYDROCEPHALUS BY CRANIECTOMY.*

BY EDWARD P. DAVIS, A.M., M.D.

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The patient, whose history is here reported, was an infant aged six months when seen for the first time. The parents had two other children who did poorly during the first six months of life. Before the birth of this child, the mother was in excellent health, and the birth was spontaneous. She nursed the child for three weeks, when she had what was described as "a bilious attack," and the secretion of milk failed. The child was then fed upon starchy foods. It weighed at birth five and a half pounds, and at six months, nine pounds. It was brought for treatment because it was restless, had a poor appetite with dyspepsia, and did not seem to be gaining.

On examination, the child's length was 54 cm. The circumference of its chest was 34 cm., and the circumference of the cranium 41 cm. The contour of the cranium was characteristic of intrauterine rachitis, the child's flesh was flabby, and it was restless, fretful and weak. There were no signs of teeth, and the child had a double inguinal hernia. Three months after it was first seen, its length was 55 cm., its chest, 35 cm., and the circumference of the cranium, 43 cm. The child had gained somewhat in weight during the summer at the seashore. Five and a half weeks after this, the circumference of the child's cranium was 47 cm. It was decidedly stupid and evidently suffering from intracranial pressure, although its digestion was much better. Its stupor had alarmed the parents, who had also observed the continuous enlargement of the cranium. When the question of treatment was considered, the parents were informed that medicinal treatment offered nothing, but operative treatment gave a possibility of temporary improvement. They accepted the latter, with a full understanding of its risks.

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The child was transferred to the Jefferson Hospital, and was seen by Dr. W. W. Keen in consultation. Dr. Keen was willing to drain the right lateral ventricle, although he expressed a guarded opinion in giving a prognosis. The effort was made in this case to insure continuous drainage and not simply to withdraw fluid from the ventricles. Accordingly, the child was anesthetized and under antiseptic precautions, the cranium was trephined at one side of the sagittal suture and in the parietal bone of the right side. This was accomplished without difficulty, although the cranial bone seemed thinned by the pressure within. A sterile silver cannula containing a stylet was then passed through a slit in the membranes downward until the ventricle was reached, when the stylet was withdrawn. A stream of serous fluid immediately followed. Two strands of sterile silk worm gut were then introduced through the cannula and the cannula withdrawn. The tissues were closed as rapidly as possible by suture, leaving the ends of the silk worm gut emerging through the flaps. Pressure was made over the site of drainage by antiseptic dressings. The child collapsed and did not recover, although it lived for some hours after the operation.

The unfavorable feature about the operation was the fact that considerable fluid escaped. There was no hemorrhage nor apparent shock.

The bad result in this case was by no means unexpected, although the circumstances seemed to warrant an attempt to relieve the patient. The literature of the subject does not give reports which would lead one to hope for permanent recovery after the operation. In the face, however, of the anxiety of parents to do all possible for such children, the attempt is justifiable in the absence of any other known method of treatment. The case is reported with the hope of eliciting an expression of the experience and opinion of the members of this Society.

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DISCUSSION.

DR. ROTCH.—I have been very much interested in this class of cases and have had quite an experience with them. In the Infants' Hospital at Boston we have had them for some years, and have had them operated upon. No bad results came from the operation as such. There were a number of cases, I cannot state exactly how many; they were favorable, if any could be favorable, for operation. They were treated with tapping and I had some cases which we kept for weeks with permanent drainage, by tubes introduced into the ventricles, the fluid being withdrawn every day in small amounts so as to make the child comfortable. The results were invariably bad, so that our opinion now in Boston, from what we have observed, is that the operation in no way is curative. It may be, possibly, palliative, making the child more comfortable for the time being, and it is a perfectly proper operation to do if the parents wish to have something done. So far as being curative it is not a success for hydrocephalus, although we do not know of anything better.

DR. DORNING.—I wish to refer to a case of chronic hydrocephalus, in which I withdrew about two ounces of fluid by lumbar puncture. The child improved very markedly. Prior to the puncture the child had frequent convulsions and was very ill. After the puncture the convulsions ceased and the child seemed to improve for about three weeks. The symptoms reappeared after that and, unfortunately, I lost track of the child.

THE PRESIDENT.—I have had records of three cases of hydrocephalus, two of which I had given over to the surgeons to treat. In these two cases an aspirating needle was passed into the anterior fontanelle and the ventricle aspirated under antiseptic precautions. One patient was two years old and the other a little younger. Both cases did well for a while, and then died with the symptoms of stupor and convulsions. Lately I have had one very interesting case treated in my ward by lumbar puncture, a baby seven months old, with marked signs of rickets and with a marked hydrocephalus. The baby developed symptoms resembling those of tubercular meningitis. The child would cry out at night, would be stupid during the day time, and developed convulsions similar to Dr. Dorning's case. We tapped the child repeatedly, each time withdrawing ten to twenty cubic centimetres of fluid. The baby seemed to improve after each tapping. The convulsions ceased, the baby took its food and noticed us as we made the rounds. The cry at night ceased for a time. We tapped the child six or seven times at intervals of a week with very good results, intending by the tapping to gradually reduce the amount of fluid in the ventricle. A few days after the last tapping the child developed a slight rash

and a temperature of 103°. The temperature ran up to 108° F. and the child died with Cheyne-Stokes respiration and convulsions, although the greatest care was taken with this tapping and the same quantity withdrawn as on the previous occasion, which had been at an interval of about a week. The question arises whether the diminution of pressure had not precipitated the fatal result. An autopsy was made. I suspected there had been a tubercular element, as has been described, and hydrocephalus complicating the tubercular disease, but nothing of the kind was found. It was a simple case of hydrocephalus. There was no infection of any kind as a result of the punctures.

DR. DAVIS.—The question of lumbar puncture must always be considered in the treatment of hydrocephalus. In this case, Dr. Keen preferred to drain the ventricles by the method which he has employed successfully in a number of cases.

Although drainage of the ventricles may for the time being give satisfactory results, we have no guarantee that the gain will be permanent. Cases are reported in which the cranium continued to enlarge after fluid had been removed.

As regards immediate danger of death, it seems to depend largely on the amount of fluid withdrawn, and hence those who perform this operation are solicitous that as little fluid as possible should escape. The effort is made to maintain the intracranial pressure, to dam up the fluid and secure a slow and aseptic emptying of the ventricles. Even under the most favorable circumstances, the results of this method of treatment are not encouraging.

DR. ROTCH.—In the cases we have operated upon at the Infants' Hospital the greatest care was taken, and some very good scientific and practical work was done in keeping a record of the amount of fluid pressure. The observations were made by Dr. John Dane, by means of a manometer attached to the drainage tube. The positive pressure was found to be 7 cm. and when the child cried it rose to 12 cm. The pressure was found to vary considerably. I have already reported the case.

The Prophylaxis of Tuberculosis in Children.—Olimpio Cozzolino (*Giornale Internazionale delle Scienze Med.*, Dec. 15, 1899,) says that it is easier to treat children than adults, because, being subject to parental guidance, they are more tractable. Infectious diseases often lead to pulmonary tuberculosis, and children predisposed to phthisis should be especially guarded from infection. Every hygienic precaution should be observed, and an open air life insisted upon, with due regard to cold, rain, and wind. A carefully graded course of cold bathing is excellent. Antisepsis of the air passages and care of the teeth are of especial importance. Milk, fats, honey, cocoa, are valuable foods.
—*Medical Record.*

INTESTINAL OBSTRUCTION THROUGH A LOOP FORMED BY MECKEL'S DIVERTICULUM WITH LIGAMENOUS ATTACHMENT.*

BY IRVING M. SNOW, M.D.,

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Intestinal obstruction is often a very obscure condition, being caused by many complex and interesting pathological changes. The following case seems worthy of record, as the stenosis of the bowel was the result of a curious congenital deformity. The patient was a boy of three years, in good health up to the present illness.

Nov. 9th.—He fell a short distance from some steps, hitting himself on the abdomen to the right of the naval. No bad effects followed this accident; in fact, there was complete relief in an hour.

Nov. 11th.—The child ate quite freely of grapes, and there is some reason to believe that this dietetic indiscretion, by producing intestinal irritation and increased peristalsis, was the exciting cause of the obstruction.

Nov. 12th.—The boy had a normal fecal passage, but commenced vomiting, and vomited persistently for four days. During this time, in spite of laxatives and enemata, the bowels remained obstinately constipated until Nov. 17th. There was also agonizing, nearly continuous, abdominal pain, so intense as to require opiates on Nov. 14th, 15th and 16th. When the child was asked where it hurt him he pointed always to the naval. Nevertheless, there was no tenderness, induration or abdominal tumor to be felt; the belly was slightly distended, with some gurgling and rumbling on palpation. Temperature insignificant— 0.5° to 1° above normal; indeed, the illness ran its entire course without fever.

On November 16th and 17th marked prostration developed from the pain, lack of nourishment and frequent vomiting. I first saw the child on November 17th, on the sixth day of its illness. He was a stout little boy, slightly narcotized, with slow, sighing respiration; pulse, 120; temperature, 99° ; lungs, throat, heart and skin normal; abdomen tympanitic, somewhat distended; no hernia, abdominal tenderness, doughiness, nor induration; rectal examination negative.

Late in the afternoon the child vomited fecal matter. To remove a supposed fecal impaction a Nobel injection was given. The effect of the injection was to cause intense abdominal pain;

* Read before the American Pediatric Society, Washington, D. C., May 1, 2 and 3, 1900.

the child writhed with colic, vomited fecal matter again, and went into profound collapse; after several hours a small fecal stool containing three grape seeds was passed. The evacuation was followed by the expulsion of considerable wind, and by a subsidence of the abdominal distension. Careful palpation of the relaxed abdomen revealed no tenderness or abnormal swelling.

Nov. 18th.—Child apathetic, frequent sighing; occasional abdominal pain; some tympanitis; respirations, 12; pulse, 120; temperature, 99.5°.

Nov. 19th and 20th.—There was now observed visible peristalsis which lasted until the child's death.

Nov. 22d.—Patient again commenced to vomit feculent matter; a quart of olive oil was given by enema. A fecal stool containing grape seed, accompanied with flatus, was the result of this procedure; no fecal matter was vomited after the olive oil injection, which, in fact, seemed to relieve the colic, and to remove a lingering

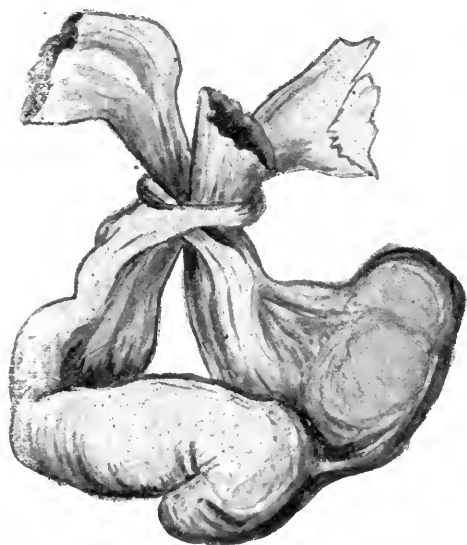


Fig. 1. STRANGULATION BY MECKEL'S DIVERTICULUM, AFTER TREVES.

doubt as to the presence of a complete intestinal obstruction. Nevertheless, the patient failed rapidly, and died November 23d after an illness of twelve days. The cause of death was shown by the autopsy to be exhaustion and inanition from pain, vomiting and interruption of assimilation from an unrecognized abdominal obstruction.

Autopsy.—No peritonitis; appendix healthy. The symptoms were due to the snaring of a coil of ileum in a loop formed by an intestinal diverticulum projecting from the ileum and connected by a slender ligament to the mesentery close to the ileo-cecal valve. This glove finger-like diverticulum (Meckel's) was given off twelve inches from the ileo-cecal valve and measured two and a half inches in length.

The Meckel's diverticulum and ligament formed a loop

going one and a half times around the ensnared intestine. In the loop the diverticulum lay uppermost, forming the upper and about one-half the lower portion of the constricting band. The strangulated intestine was the portion of ileum between the diverticulum and the ileo-cecal valve; the neck of the coil of intestine was not tightly compressed, and could easily be slipped to and fro through the loop. Evidently the constriction did not completely close the lumen of the bowel, as no fecal matter was found in the small intestine, and above the incarceration we found some olive oil, forced through the ensnared gut by an enema given a day before the child died. Above the obstruction the ileum was slightly distended. No congestion or discoloration of the small intestine was observed. This form of intestinal obstruction has been exhaustively described by Treves. In his classification of intestinal stenosis by bands and apertures, he states that strangulation by the diverticulum and diverticular bands through loops and knots forms one-third of the total number. These are relatively rare in early childhood. The mechanism of the snaring of the bowel is very simple. Meckel's diverticulum is the persistence in extrauterine life of a fetal structure—the omphalo-mesenteric duct. In its most perfect state it exists as a tubular canal extending from the lower portion of the ileum to the umbilicus. More frequently than this canal a blind tube two to four inches long is present, occasionally a fine ligament, the obliterated portion of the omphalo-mesenteric duct extends from the end of the diverticulum to the abdominal wall near the naval or breaking loose from this region contracts secondary adhesions generally to the mesentery.

Thus the diverticulum and ligament form a loop floating free in the abdominal cavity. Exaggerated or irregular peristalsis may cause coils of intestine to pass through the arcade thus created, and by the tightening of the loop stenosis or complete intestinal strangulation occurs. In my case the bowel was not tightly compressed; fecal matter, grape seed and flatus passed through the constriction, and olive oil was forced above it. It must also be remembered that fecal vomiting is a frequent accident after an intestinal irrigation.

This seeming perviousness of the intestine caused a fatal error in diagnosis. The condition was not recognized as intestinal obstruction, and not being relieved by operative treatment, ended in death.

DISCUSSION.

DR. CAILLÉ.—The case reminds me very much of the cases of chronic intussusception, if I may call them so, in which the clinical symptoms are those of obstruction, and in which the obstruction is not absolutely complete; and I think in every instance there should be an exploratory laparotomy. It seems to me that if an exploratory laparotomy had been done in this case on the first occasion of fecal vomiting, there might have been an opportunity of saving the child.

DR. ADAMS.—I am in favor of early operation. I have so often seen hospital cases in which after delay the surgeon says, "I will operate and give the child the only chance it has," with the result that in five or six hours the child is dead. In a case that recently was under observation, the baby was taken ill Sunday afternoon, and Monday morning when I saw him he had vomited, but there had been no fecal vomiting. There was the characteristic strain and scream; no tumor could be made out, but he had an anxious expression. I advised the parents to have a surgeon in consultation. The father had unfortunately given in the morning three drops of a deodorized tincture of opium which had been in the house for some time, and the baby was completely narcotized. The baby was given injections of the normal saline solution, with apparently some relief. The abdomen became very much distended, however, and the next day the surgeon was called in. The anesthetic was given by me, and after the baby was under the influence of the anesthetic he had a profuse stool, consisting of fecal matter. The question then arose whether the obstruction had been relieved. The surgeon, with others present, thought, as the abdomen had not collapsed and no flatus had been passed, he had better operate. He operated and found an invaginated intestine of about four inches, but not adherent. That baby, between six and seven months of age, recovered. It is the only case in the District of Columbia of an infant that has recovered from the operation. So that has encouraged me to advise early operation. I think the trouble has always been in waiting and attempting to untangle, so to speak, the intestine either by the introduction of gases or fluids. Now we know the history of these cases. It certainly is plain enough, they go on from bad to worse, and very few of them spontaneously recover.

DR. CHRISTOPHER—I would like to report briefly an intensely interesting case in a breast-fed, perfectly healthy baby four months old. It was sick in the morning. I saw the baby at twelve o'clock and it had then a temperature in the rectum which was normal, and some normal feces were passed. The most careful examination failed to reveal any trouble. Intussusception was the only thing that we could make out. At five o'clock the baby was seen with me by Dr. Henrotin with a view

to operation. At six o'clock the abdomen was opened. There was no vomiting at any time and it simply presented the appearance of a normal healthy child with great depression. Intussusception of an inch and a half of the small intestine into the colon was found. This was removed very readily and the baby made a complete recovery, nursing the mother half an hour after the invagination was reduced. When seven months old the same condition recurred, the diagnosis being made by the mother. Dr. Henrotin and I arrived at the house about ten minutes apart and agreed with the diagnosis of the mother. We attempted to reduce the invagination but failed. In about six hours the child's abdomen was opened and again an invagination was found. There was the same lack of symptoms. While the abdomen was open we attempted to reduce the intussusception by the injection of air, and I believe we could have put on pressure enough to have ruptured the intestine without any reduction. The intussusception was then reduced by hand, and advantage taken to remove the appendix. The patient made a complete recovery, and has gone a year and a half now without intussusception. So far as I know it is the only instance in which there has been a double intussusception in the same case with recovery of the patient.

DR. CARR.—This history emphasizes the importance of early operation in this class of cases where there are no symptoms that are considered diagnostic. In the past year I have had three cases in which there has not been a rectal tumor. Another thing, some of these cases have fecal movements through the intussusception. Many of these patients show symptoms that are hardly more severe than are seen in an ordinary colitis. The symptoms are very frequently due to obstruction that is not recognized. In one case the surgeon opened the abdomen under protest. He did not regard the symptoms as due to intussusception, but he found it. The English surgeons have recorded a number of cases like Dr. Snow's in which on making an incision they found a constriction of Meckel's diverticulum. The general symptomatology may be wanting, but it is a condition that calls for prompt surgical interference. It cannot be relieved by injections either of water or of air.

THE PRESIDENT.—One point in Dr. Snow's paper seems to have been overlooked: that is, the oil was found above the intussusception, showing that the oil injected got past the intussusceptum but did not reduce it.

DR. SNOW.—I spoke of early operation and stated that operation was delayed on account of the obscurity of the symptoms. Strangulation through a loop formed by Meckel's diverticulum, is very rare and is difficult to diagnose. The only satisfactory treatise on the subject is that of Treves. In cases similar to the one I have described, early operation is indicated even if there is a doubt as to the diagnosis.

Clinical Memoranda.

REMARKS UPON THE DIPLOCOCCI RESEMBLING GON- OCOCCI FOUND IN THE NORMAL VAGINA OF CHILDREN.*

BY CHARLES A. ROSENWASSER, M.D.,
New York.

The object of this paper is not to attempt to bring anything new to your notice, but to call attention to the need of the further study of a condition that is of the greatest importance. I refer to the vaginal discharges of childhood, and especially to the discharge believed to be caused by the gonococcus.

The recent development of three cases of supposed true gonorrhea in the Children's Ward of Mount Sinai Hospital, cases which developed in spite of all precautions taken to prevent infection, prompted me to investigate the condition. Our system of isolation of these cases is as follows: They are kept in one part of the ward; the beds are surrounded by a guard, so that the other children in the ward may not wander near the afflicted children, with whom they are not allowed to play, sit or eat. These patients have a special nurse, who is not allowed to aid in nursing the other children of the ward. They have separate utensils of all kinds and all the clothing and bedding is labelled and sent to the laundry in separate packages, to be washed in a special apparatus. The diapers also are kept apart from the diapers of other children and washed in a special manner. Catheters, douches, basins and every possible piece of apparatus used upon these patients is not utilized for the other children. After such a patient is discharged, the bedding, mattress and bed are disinfected as after a contagious disease.

I went carefully over our system, and, finding nowhere any defect, decided to look for the cause in the children themselves. I therefore made and studied a series of spreads taken from apparently healthy children and referred to the literature of the subject to acquaint myself with what had already been done.

Microorganisms have been found in the vagina of the new-born.

* Read before the Society of the House Staff of Mount Sinai Hospital, New York, May 28, 1900.

Lustgarten and Manneberg found in the normal male urethra various microorganisms, amongst them intracellular diplococci, which did not decolorize by Gram.

De Amicis injected ammonia into a normal urethra, and produced a suppurative inflammation in the pus of which extracellular diplococci resembling gonococci were found. He also inoculated the male urethra with vaginal discharge, not gonorrheal, and produced a clinical gonorrhea. In the pus micrococci were found resembling gonococci. These experiments were confirmed.

Koplik found in the normal vagina diplococci almost the exact counterpart of gonococci, which did not decolorize by Gram. He found also diplococci which did decolorize by Gram after a longer exposure. In gonorrheal cases he found pus coming from the cervix in every case that he looked for it.

Epstein inoculated healthy children with gonorrheal pus and got negative results; he, therefore, concluded that there must be present a peculiar condition of the mucous membrane to enable the gonococcus to produce a suppuration.

Many other observers have found in the normal vagina diplococci that were intracellular and did decolorize by Gram, but, as in Koplik's case, they did not have the typical arrangement of the gonococci. Heiman found such organisms, which were larger than the gonococci. These microorganisms have been termed pseudo-gonococci. It was my good fortune to demonstrate to Dr. Koplik and to several of my colleagues, in spreads from apparently healthy vaginae, intracellular diplococci which did decolorize by Gram, and differed only from the gonococcus in not having the typical arrangement.

My spreads also showed extracellular cocci, diplococci and bacilli, as well as intracellular organisms of like morphology which did decolorize by Gram, as well as many which did not. I also saw much granular matter which decolorized by Gram. Thinking that my dyes may have been contaminated, I filtered them, and again found these granular masses.

It is acknowledged that the gonococcus possesses a varied morphology; for example, Heiman states that cultures of gonococci on chest serum agar are at times unrecognizable as such. He had such specimens, only found to be gonococci on transplanting. He also found in a culture sixty-two days old, and in another 102 days old, nothing on a cover-glass resembling

gonococci. All that he found was a granular mass which did decolorize by Gram.

It is known that in chronic gonorrhea the gonococci are few in numbers, and very few groups are found in individual pus cells. The same is true of the intracellular diplococci found in the normal vagina.

Neisser himself admits that it is oftentimes very difficult to tell the diplococcus found normally from the gonococcus, even when the latter is in pure culture.

A consideration of the above facts leads me to suggest: It may be that the condition in some cases of vaginal discharge is caused by an attenuated or not fully developed gonococcus which does react to Gram.

The normal vagina with its bacterial flora, under certain conditions not yet understood, seems to be peculiarly susceptible, especially in hospital wards, to develop a discharge in which diplococci are found which, both in stain and cultural characteristics, cannot be differentiated from true gonorrhea. The present consensus of opinion seems to be that these cases are true gonorrhea. The question arises, Why should the vagina always be the seat of infection? Why, if this is a direct contagion carried in some way to the children by the nurse, should we not have also infections of the eye? The infections of the eye are comparatively infrequent, though they do very rarely crop up. This has been explained by the fact that the conjunctiva is not as susceptible as the vagina to infections.

I remind you that the diplococci found by others and by me closely resemble gonococci, and more especially the gonococci found in chronic gonorrhea. The future may show that these various microorganisms are but different stages of development of one organism.

As to the granular matter, broken-down pus and epithelial cells could easily account for this; but when we recall that Heiman at the end of 102 days found all that remained of his pure culture of gonococcus to be granular matter, it seems as though from a study of the granular matter something might be gleaned. I am not in sympathy with those who claim that an intracellular diplococcus which decolorizes by Gram in one minute is gonococcus, while that which decolorizes in two minutes or more is not; for it must be remembered that Gram's stain was only an accidental discovery, and we are still in the

dark as to how it acts. Besides this, we rarely find two workers who observe the same technique.

If we suppose that there is something in the chemical make-up of the gonococcus to enable it to react as it does to Gram, is it not rational to suppose that a diplococcus which is intracellular and which cannot be differentiated morphologically from the gonococcus, and which will decolorize by Gram after a somewhat longer exposure, is nothing but the gonococcus in some other state of development?

Pneumococci and Klebs-Löffler bacilli have been found in healthy throats, and we know that in many cases where Klebs-Löffler have been found there developed later, in the presence of inflammation, true diphtheria. Why cannot the same condition obtain in relation to the gonococcus in the vagina and urethra?

The study of the bacteriology of the cervix of children, which is of course almost impossible to conduct, may shed some light on the subject, as might also the investigation of the many extracellular microorganisms which do and do not decolorize by Gram. If a case could be taken in which the so-called pseudo-gonococci have been found in which there is no vaginitis, and by means of some irritant a vaginitis be incited, we might learn whether this diplococcus would present all the characteristics common to the gonococcus in the presence of such an inflammation. Such a procedure would not be justifiable on the human subject.

In conclusion, I will state that I hope to continue the investigation of the vaginal discharges of childhood.

MOUNT SINAI HOSPITAL.

Gastrointestinal and Scrotal Hemorrhages in an Infant One Month Old.—Ausset and Derode (*Annales de Méd et Chirurg Infantiles*. September 15, 1899,) report the case of an infant aged thirty-two days which presented an absolutely uncontrollable hemorrhage from an insignificant excoriation of the scrotum. The next day hematemesis and melena occurred. Death rapidly intervened. The patient was the ninth child, the others having perished prematurely. The authors attribute the hemorrhages to hereditary syphilis, which caused a general endoperiarteritis. While gastrointestinal hemorrhages from this course are rare, this is thought to be the first case in which hemorrhage from the scrotum has been described.—*The American Journal of the Medical Sciences*. January, 1900.

ARCHIVES OF PEDIATRICS.

JULY, 1900.

Edited by WALTER LESTER CARR, M.D.

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DR. JACOBI AND THE "FESTSCHRIFT."

It is difficult to give in a few words any idea of the activities of a life which for half a century has been devoted to medicine with a zeal that is untiring. A half century is a long work day, and when fifty years represent ceaseless and steady labor in a profession that exacts the best of mind and body, it is due that some measure of praise should be bestowed upon the man who has kept up to the standard of an earnest endeavor to further scientific progress in medicine and to advance the solidarity of his profession. The half century is reached and his teachings and writings convey the strength of utterance that accompanies a firm belief founded on knowledge that has been

gained by study and observation during the years of a long professional life. His writings and teachings have been abreast of the times, because to his clinical skill he has added of the best in the literature of medicine. He never has been behind his profession. Such a man could not be unknown or neglected.

While a specialist he has always contended that his particular branch of medicine is not a thing apart but it is general medicine, and is above a narrow specialism. He has advocated the study of pathology in association with clinical medicine, so that morbid anatomy would be recognized and studied with the symptomatology of disease.

It is to this physician, who from graduation has labored to advance the standing of his profession, that some of the best known men in medicine have dedicated the work of their brain, that what he has done for them in their science may be known and be an incentive to all who labor for further advances. These writers show that when a man works earnestly and faithfully he has a reward in the interest he has aroused among those who were his pupils, and who, fired by his enthusiasm, go forward as his colleagues and co-workers.

Dr. Jacobi has worked in the van of his profession, and now his distinguished confrères at home and abroad honor him in the "Festschrift."

This book contains the writings of pathologists, specialists, general practitioners of medicine and of surgeons, and all the authors cheerfully acknowledge the ability of Dr. Jacobi to keep an unflagging interest in the advances of medicine. It is the wish of all who have written in this book and of all who are its readers that the professional zeal that is so personified in Dr. Jacobi should long remain as an incentive to more extended research in the science of medicine.

Bibliography.

Les Médicaments chez les Enfants. Par le Dr. Jules Comby. Paris: J. Rueff. Pp., 681. 1900.

This is an extensive work on the therapeutic measures suitable for infants and children. The subjects are in alphabetical order. The first article is "Absinthe" and the last is "Zinc." There are additional pages with tables of doses and the actions of some poisonous drugs. Almost every subject relating to the management of infants and children is to be found. Dentifrices gymnastics, hydrotherapy, massage, organotherapy and vaccination have places and some of the articles on these and kindred topics are lengthy and explicit. For example, under the heading of hydrotherapy not only does the author advocate the external use of water in acute diseases, but he gives long lists of springs, the waters of which are believed to be suitable for rachitis, rheumatism and other conditions. Hydrotherapy is advised in typhoid fever and in pneumonia.

Alcohol is not favored by Dr. Comby, and although he gives its uses in depressing diseases he feels that it is administered much more freely than is necessary.

Opium, the author believes, should be administered with caution.

Antipyrin is a drug much used, and it is felt to be a safe medicine for children.

Intestinal antiseptics are employed and recommended.

Too much cannot be said in praise of a work that shows such a broad view of the means at our command for the management of children's diseases. If exception is taken to a few of the drugs mentioned by the author it must be acknowledged that a large number of the proprietary articles in every day use are, from a therapeutic standpoint, much worse.

The book is a model of what clean type can do to make an attractive page restful to the eyes.

Formulaire Therapeutique et Prophylaxie des Maladies des Enfants. Par le Dr. Jules Comby. Troisième Edition. Paris: J. Rueff. Pp., 841. 1900.

In the preface Dr. Comby states that the new edition is demanded because of the large sale of the previous issues. He

has taken the opportunity to correct some of the articles and change the dosage of various drugs.

The arrangement of the headings is alphabetical, which makes it easy for the reader to find any subject.

For diphtheria the author urges the use of antitoxin, but he does not believe that supportive and tonic treatment should be overlooked. He pays well-merited regard to O'Dwyer's work in intubation and states that it has been the means of lessening the mortality of the disease.

Under the heading of malaria the treatment by quinin is naturally found. The methods of administering the drug in milk, by inunctions, hypodermatically, and by rectum are considered satisfactory. Some of the doses given are larger than are administered in this part of the United States.

While medicinal treatment is considered important and prescriptions are to be found on every page the prophylaxis and prevention of disease are not omitted. The author shows his opinion of American physicians by frequent references to their contributions to medical literature.

The volume is a valuable and complete work of reference for physicians who desire to study the treatment of any particular disease and also for those who wish to keep up their reading in the lines of foreign contributions to pediatrics.

Tetany Due to Influenza.—Gomez (*Rif. Med.*, January 23, 1900), records the case of a child of seven, who during an epidemic of influenza which had attacked five people in the same house, developed fever, coryza, severe pains in the back and limbs. The next day the muscles began to stand out under the skin, walking became difficult owing to spastic contractions. Slight opisthotonos set in later. There was also a certain amount of trismus. Strong contractions of the face muscles followed percussion over the external angle of the orbit. The knee-jerks were exaggerated. There was no clonus, no history of injury or digestive trouble, and no evidence of rickets. Sodium salicylate with intestinal antiseptic treatment was tried for three days without benefit. Then copious injections of a physiological solution of salt were given hypodermically (250 grams). After four or five days of this treatment improvement set in and the child was discharged cured.—*British Medical Journal*.

Society Reports.

MINUTES OF THE TWELFTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

Held at Washington, D. C., May 1, 2, and 3, 1900.

The meeting was called to order by the President, Dr. Henry Koplik, of New York. The minutes of the eleventh annual meeting were approved as published in the ARCHIVES OF PEDIATRICS.

The following members were present: G. N. Acker, M.D., Washington; S. S. Adams, M.D., Washington; A. D. Blackader, M.D., Montreal; W. D. Booker, M.D., Baltimore; A. Caillé, M.D., New York; W. L. Carr, M.D., New York; H. D. Chapin, M.D., New York; W. S. Christopher, M.D., Chicago; F. S. Churchill, M.D., Chicago; A. C. Cotton, M.D., Chicago; F. M. Crandall, M.D., New York; E. P. Davis, M.D., Philadelphia; J. Dorning, M.D., New York; F. Forchheimer, M.D., New York; R. G. Freeman, M.D., New York; J. H. Fruitnight, M.D., New York; E. E. Graham, M.D., Philadelphia; J. P. C. Griffith, M.D., Philadelphia; L. E. Holt, M.D., New York; H. Jackson, M.D., Boston; A. Jacobi, M.D., New York; C. G. Jennings, M.D., Detroit; H. Koplik, M.D., New York; H. A. Lafleur, M.D., Montreal; C. F. Martin, M.D., Montreal; D. J. M. Miller, M.D., Philadelphia; W. P. Northrup, M.D., New York; C. P. Putnam, M.D., Boston; B. K. Rachford, M.D., Cincinnati; T. M. Rotch, M.D., Boston; I. M. Snow, M.D., Buffalo; L. Starr, M.D., Philadelphia; J. P. West, M.D., Bellaire; H. Williams, M.D., Boston; J. C. Wilson, M.D., Philadelphia; L. M. Yale, M.D., New York.

FIRST SESSION.—MAY 1.

The annual address of the President, entitled "The Ambulatory and Hospital Management of the Gastrointestinal Derangements of Infancy in the Summer Months Among the Poor of Large Cities," was read by Dr. Henry Koplik, of New York.

Dr. I. M. Snow, of Buffalo, reported a case of "Intestinal Obstruction through a Loop formed by Meckel's Diverticulum

with Ligamentous Attachment; Specimen," and showed a drawing of a similar case.

Discussion by Drs. Caillé, Adams, Christopher, Carr, Koplik, and Snow.

Dr. B. K. Rachford, of Cincinnati, read a paper on "The Pancreatic Digestion of Casein."

Discussion by Drs. Rotch, Caillé, Fruitnight, Cotton, Holt, Blackader, Koplik, Miller, and Rachford.

Dr. Augustus Caillé, of New York, read a paper entitled "Clinical Observations upon the Operative Treatment of Tuberculous Peritonitis."

Discussion by Drs. Fruitnight, Rotch, Cotton, Jackson, Koplik, and Caillé.

SECOND SESSION.—MAY 2.

Dr. Edward P. Davis, of Philadelphia, read a paper entitled "The Treatment of Hydrocephalus by Craniectomy."

Discussion by Drs. Rotch, Dorning, Koplik, and Davis.

Dr. R. G. Freeman, of New York, read a paper on "The Nephritis of Influenza in Children."

Discussion by Drs. Fruitnight, Dorning, Jennings, Rotch, Carr, Churchill, Caillé, and Freeman.

Dr. Augustus Caillé, of New York, presented a specimen and reported a case of "Sudden Death from Perforation of Trachea and Bursting of Caseous Gland."

Discussion by Drs. Rotch, Freeman, Dorning, Miller, Blackader, Fruitnight, West, and Caillé.

Dr. A. C. Cotton, of Chicago, showed a specimen and read a report of a case of "Congenital Cardiac Malformation with Endocarditis and Anuria."

Discussion by Drs. Adams, Blackader, and Cotton.

Dr. A. D. Blackader, of Montreal, read a paper entitled "Enteric Fever in Childhood."

Discussion by Drs. Cotton, Adams, Northrup, Griffith, Rotch, Wilson, Fruitnight, Graham, Freeman, Miller, Dorning, and Blackader.

THIRD SESSION.—MAY 3.

Dr. T. M. Rotch, of Boston, showed photographs and read a paper entitled "A Case of Rhachischisis."

Dr. J. H. Fruitnight, of New York, read the history of a case of "A Fatal Post Otitic Cerebral Abscess with Amnesic Aphasia."

Discussion by Drs. Knapp, Chapin, Northrup, and Fruitnight.

Dr. W. S. Christopher, of Chicago, presented instruments and diagrams to illustrate a paper that he read on the "Measurements of Chicago School Children."

Discussion by Drs. McDonald, Yale, Fruitnight, Cotton, Churchill, Chapin, Rachford, Griffith, Graham, and Christopher.

Dr. H. D. Chapin, of New York, read a paper entitled "Epidemic Paralysis in Children."

Discussion by Drs. Adams, Griffith, and Chapin.

Dr. W. P. Northrup, of New York, showed a specimen and read a report on "Atresia of the Larynx due to Faulty Intubation."

Discussion by Drs. Miller, Cotton, and Northrup.

Dr. D. J. M. Miller, of Philadelphia, read a paper entitled "Three Cases of Rotary Head Spasms Associated with Rickets."

Discussion by Drs. Koplik and Miller.

Dr. S. S. Adams, read a paper on "Poisoning by Vapo-Cresolene."

The following papers were read by title:

Drs. A. Stengel and C. Y. White, of Philadelphia, "Studies on the Blood in Childhood."

Dr. G. N. Acker, of Washington, on "Malarial Coma."

Dr. F. Forchheimer, of Cincinnati, on "Pertussoid."

Dr. A. C. Cotton, of Chicago, on "General Subcutaneous Emphysema."

Dr. S. McC. Hamill, of Philadelphia, on "A Report of a Case of Ante-Natal Hemorrhage into the Suprarenal Capsule and Perirenal Tissue, Causing Death three days after Birth from Rupture of the Hemorrhagic Sac into the Peritoneal Cavity."

Dr. A. Seibert, of New York, on "Exclusive Soup Diet and Rectal Irrigation in Typhoid Fever."

Dr. A. Baines, of Toronto, on "Two Cases of Fatal Lead Poisoning in Children."

Dr. F. Huber, of New York, on "Naso-Pharyngeal Disease in Pediatric Practice."

EXECUTIVE SESSION.—MAY 3.

On nomination of the Council the following officers were elected for the ensuing year:

- President*, - - WM. D. BOOKER, M.D., Baltimore.
First Vice-President, FREDERICK A. PACKARD, M.D., Philadelphia.
Second Vice-President, J. LOVETT MORSE, M.D., Boston.
Secretary, - - SAMUEL S. ADAMS, M.D., Washington.
Treasurer, - - J. PARK WEST, M.D., Bellaire, Ohio.
Recorder and Editor, WALTER LESTER CARR, M.D., New York.
Member of Council, FLOYD M. CRANDALL, M.D., New York.

Place of Meeting—*Niagara Falls.*

Fee for Ensuing Year—*Five Dollars.*

The offer of the ARCHIVES OF PEDIATRICS to print the Transactions as in previous years, was accepted.

The Auditing Committee reported the books of the Treasurer correct.

Elected to membership, E. M. Saunders, M.D., St. Louis.

Resigned, B. Scharlau, M.D., and Wm. P. Watson, M.D.

Dropped, (according to the Constitution), Dillon Brown, M.D., and J. H. Musser, M.D.

Two applications were received, John Zahorsky, M.D., of St. Louis, and J. Madison Taylor, M.D., of Philadelphia.

On motion it was agreed that a resolution to assume an obligation of \$25 for the expenses of the Paris Congress be laid on the table.

On motion of Dr. Christopher, it was unanimously voted to petition the Congress of the United States to provide adequate facilities for verifying weights, measures, and chemical apparatus.

WALTER LESTER CARR, M.D.,

Recorder.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 5, 1900.

WILLIAM H. THOMSON, M.D., PRESIDENT.

PREVENTION, MANAGEMENT, AND EARLY DIAGNOSIS OF SCARLET FEVER.

DR. FLOYD M. CRANDALL read a paper with this title, in which he pointed out the better opportunity one had to employ prophylaxis in scarlet fever than in measles, where the period of contagion commenced several days prior to the appearance of the eruption. In 90 per cent. of the cases of scarlet fever the period of incubation was between two and six days. The occurrence of vomiting, fever, sore throat and a rapid pulse was strongly suggestive of scarlet fever. In his experience, vomiting had been a most constant symptom, and had occurred suddenly. At the outset it was not uncommon for the pulse to reach 150, and if with these two there was associated a redness of the fauces, the physician had good grounds in the early stages of making a provisional diagnosis of scarlet fever. Some of the recent cases of "la grippe" in New York City had exhibited a mild sore throat and an eruption which at the outset had strongly suggested scarlatina. The so-called "strawberry tongue" is one showing reddened spots on a roughened and red ground, and not, as so many seem to think, the tongue showing red spots on a ground of white fur. In any case, though quite characteristic, it is developed too late, as a rule, to be of much aid in making the diagnosis. It was most important to determine as accurately as possible the length of time the contagion is active, yet this was often no easy task. It was often much longer than the proverbial forty days, and was not determined solely by the presence or absence of desquamation. It was now known that the presence of any purulent discharge, such as exists in otitis, pharyngitis and cervical adenitis after scarlatina, meant that there was still danger of contagion. Again, in some of the mild cases, desquamation is very slight, lasts an unusually long time, and is apt to be overlooked unless the hands, and particularly the fingers, are closely scrutinized from time to time. The question of the advisability of closing the schools in a given epidemic should be decided by the conditions prevailing in the particular commun-

ity. For example, in a rural district, in which most of the families were acquainted, the closing of the schools would probably help to check the spread of the disease; on the other hand, in New York City, such a step, by leading larger numbers of children to play together on the streets, would have directly the opposite effect. The physician should not be unmindful of the ease with which he can carry scarlet fever and similar diseases to his own or to his neighbor's children, and in order to obviate this should make it a practice to keep in the sick-room of each patient suffering from such disease a cheap cotton gown, which he wears while in the room, and discards at the close of the visit. Most families, instead of objecting to this custom, would be favorably impressed with the care and prudence of their physician, and the latter would be protected from unpleasant criticism should one of these diseases happen to break out mysteriously in one of his families at a time when he was attending others sick with the same disease. Concerning the matter of inunctions, the author recommended that they be used during the stage of eruption, employing vaselin, lanolin, or a mixture of lanolin and cold cream. Cheap grades of yellow vaselin, and indeed any ointment likely to prove irritating, whether from contained antiseptics, or by reason of proneness to rancidity, should be avoided. It was well not to use carbolated vaselin over very large areas, because in this disease, the skin not being in a normal state, there was a chance that the carbolic acid might be absorbed in too large quantity. Some persons complain a good deal of the itching of the eruption; here it would be found advantageous to use a 5 per cent. boric acid ointment. Anything which tends to irritate the skin is apt to unnecessarily prolong the period of desquamation.

TREATMENT OF SCARLATINAL NEPHRITIS.

DR. ROBERT COLEMAN KEMP read a paper on this subject. He looked upon scarlatinal nephritis as a disease *sui generis*. It is a diffuse nephritis, developing, as a rule, about the third week, and accompanied by general anasarca. The urine contains a large quantity of albumin and numerous casts of all varieties. Dr. William H. Thomson had first called his attention to the fact, that often the first indication of the onset of this affection is a sudden fall in the specific gravity of the urine. This initial fall was followed in a short time by a sudden rise in gravity,

associated with a diminution in the total quantity of the excretion. At this stage there was engorgement of the renal vessels, and no time should be lost in instituting active treatment. Frequently before the appearance of albuminuria, there would be a marked increase in the urates. Vomiting, diarrhea, headache, and twitchings of some of the muscles often preceded uremia. Rapid enlargement of the liver was an exceedingly unfavorable sign, usually pointing to a fatal issue. The speaker advocated the administration of oxygen gas to these cases of scarlatinal nephritis, claiming that it was not only a good cardiac stimulant, but aided materially in eliminating toxins. Another useful measure was enteroclysis, using a saline solution at a temperature of 110° to 120° F. for fifteen or twenty minutes at a time, and as often as three or four times a day. Experience showed that, as a rule, from three to five times as much urine was secreted as the quantity of saline solution introduced. Carbonated baths at a temperature of 98° to 100° F. were also useful.

DR. HENRY DWIGHT CHAPIN, in discussing the foregoing papers, expressed the opinion that the scarlatina of to-day, in this part of the world at least, is of a milder type than that prevalent a dozen or more years ago. A sign of some diagnostic value was the appearance on the second or third day of a peculiar red, beefy appearance of the edge of the tongue, along with prominence of the papillæ. Where it was impossible for the family to provide a separate attendant for the sick person, one of the family should take charge, and should wear an old gown or wrapper in the sick-room, and should wash and change to other clothing whenever coming from the sick-room to mingle with the others in the family. According to his experience, the first clinical sign of scarlatinal nephritis was a puffiness about the eyes.

DR. CHARLES G. KERLEY said that at one time he had carefully studied, in institution practice, an epidemic of 109 cases of scarlet fever, and that most of these had given evidence of the disease within five days after the time of infection. However, in one case, the period of incubation had been seven, in another twelve, and in still another, fourteen days. The "strawberry tongue" is of no diagnostic value, and not infrequently the rash is so slight and so transient as to mislead the physician as well as the family. However, an invariable accompaniment of scarlet fever, even though the temperature was but slightly elevated,

is marked congestion of the throat. Ordinarily quarantine would have to be maintained for four to six weeks. He emphasized the fact that the mildest cases were capable of communicating to others the severest type of the disease, and that inunctions not only lessened the chance of contagion, but allayed irritation and reduced the fever. In the treatment of scarlatinal nephritis his chief reliance was on irrigations of the colon with normal saline solution at a temperature of 110° F.

DR. JOSEPH E. WINTERS said that no other disease was so easily controlled by isolation. Regarding scarlatinal nephritis, he expressed the opinion that very few physicians had seen a fatal case of this disorder, and asserted most positively that albuminuria is no more frequent in the early stages of scarlatina than in measles. The albuminuria never developed into scarlatinal or post-scarlatinal nephritis without a period characterized by an entire absence of all evidence of renal disease. This form of nephritis is most common in dispensary and tenement house practice, and in the mild season of the year. His own opinion was that it is the result of inattention to the condition of the skin. It almost always develops about the twenty-second day, and is most commonly met with in children who are allowed out of bed too soon. It is invariably a glomerular nephritis, and its onset is announced by a sudden rise of temperature—a sign that is present from twelve to twenty-four hours before any other symptom, including urinary symptom. The acute suppression of urine often observed is brought about by such excessive engorgement of the Malpighian tuft as to cause swelling of the capsules and the obliteration of the space ordinarily present between them. Under such conditions, the clear indication was to reduce the quantity of blood going to the Malpighian tuft, and hence he would certainly not use saline infusion. The secretion of urine could be most quickly restored by the internal administration of tincture of aconite up to the physiological effect of this drug. One advantage of this remedy was that it not only reduced the vascular strain, but, at the same time, relieved the kidney by inducing free diaphoresis. He believed that in other types of nephritis the treatment recommended by Dr. Kemp might be desirable, but he would emphatically dissent from adopting such a plan of treatment in scarlatinal nephritis.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, March 13, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. D. J. MILTON MILLER presented

A GIRL OF EIGHT YEARS WITH A TUBERCULOUS CAVITY, AND EXHIBITED
A SKIAGRAPH.

For one and a half years she had had cough, fever, and progressive failure of health. There had never been hemoptysis, but expectoration had been marked. The sputum contained tubercle bacilli. When presented there were signs of a cavity at the right apex, *viz.*, cracked-pot sound, cavernous breathing, metallic râles, and pectoriloquy. These signs were heard at the supraspinal fossa and above and below the clavicle; they were sharply limited by the upper border of the second rib. At the left apex there was dulness, with bronchial breathing and crackling râles. The remainder of both lungs gave the signs of a general bronchitis. The skiagraph exhibited showed the above conditions fairly well.

The case seemed interesting, first, because of the comparative rarity in patients as young as the child presented of the signs of chronic ulcerative phthisis similar to those seen in the adult; second, because it seemed to be a case of direct infection. The girl's father had died of phthisis, and during his illness the patient had been his constant companion, sleeping in the same room with him and within a year of his death the girl developed her present illness; third, because of the rapid improvement following the child's removal from its squalid home to the hospital ward. Under the better hygienic surroundings and substantial food obtaining there, the patient had gained about eight pounds in twelve weeks, and this was in a mixed ward in which there were medical and surgical cases, where adult phthisis almost always deteriorates. The only medication had been increasing doses of creosote, of which the child was taking six drops three times a day.

Dr. Miller also presented

A PROFOUNDLY ANEMIC CHILD OF TWO AND A HALF YEARS.

The patient had been well with the exception of measles at four months, until it was weaned at the close of the first year, since which time its present condition had gradually

developed. Neither cough, vomiting, marked diarrheas, nor other digestive derangements had ever been present. There had been simple increasing pallor, languidness, loss of appetite, and two or three bowel movements daily. There had never been any nose bleed. The spleen, liver and lymph nodes were not enlarged. Slight evidences of rickets were present. The teeth, all of which had emerged, were quite carious. The child urinated frequently. Examinations of the urine and blood by Dr. A. Hand, Jr., were as follows: I. *Urine*: Distinct albumin; specific gravity, 1010; no sugar; alkaline; bacteria; no casts. *Blood*: Red blood corpuscles, 3,984,000; white blood corpuscles, 24,000; hemoglobin, 23 per cent. No nucleated cells, no poikilocytosis. II. (Two weeks after the above.) *Urine*: Albumin, a trace; specific gravity, 1010; no sugar; alkaline; leucocytes; no casts. *Blood*: Red blood corpuscles, 3,900,000; white blood corpuscles, 12,000; hemoglobin, 23 per cent.; no nucleated red cells; slight poikilocytosis. Differential count. Mononuclears, 34 per cent.; polymorphonuclears, 43 per cent.; transitionals, 6 per cent.; lymphocytes, 15 per cent.; eosinophiles, 2 per cent.

The blood condition, therefore, was that of a chloroanemia with slight leucocytosis. The absence of splenic and lymphatic enlargement, of nucleated red cells and of changes in the cells themselves would remove the case from the category of the primary anemias. The underlying cause of the anemia is difficult to determine. The onset of the condition with weaning, the slight looseness of the bowels, the carious teeth and coated tongue, would seem to point to digestive disturbance as the primary factor, as the evidences of rickets are so slight, and there is continued absence of casts. Although the urine is slightly albuminous and the micturition so frequent, these do not seem to indicate a nephritis severe enough to produce so profound an anemia. Future study of the case may perhaps clear up this question.

DISCUSSION.

DR. ALFRED STENGEL.—The signs of cavity are among the most difficult of all physical signs of interpretation in adults and certainly in children. If there is a clear depression and if the characteristic and typical physical signs of cavity, present in cases of large cavities, are found, the diagnosis is very easy, but

it has always seemed to me that the diagnosis of small cavities as often made is very risky, and is perhaps made very much more often than is justified.

In the case of children I think this difficulty is heightened because apparently physical signs of cavities are found in children when cavities are known to be absent, as has been pointed out with regard to pectoriloquy and in regard to the cracked-pot sound. Attention has been called to the cracked-pot sound over the chest of children when crying, and I have had many occasions to demonstrate this to my own satisfaction. In a child of this age and of this physique, I should doubt very much whether the sign could be obtained in that way. I should like to ask whether this sign has been marked in the child exhibited. The importance of the diagnosis of a large cavity or even of the mere existence of a cavity in a child is very great because ordinarily we do not find large cavities at this age and the signs are much more difficult to interpret than in older persons.

Regarding the case of anemia I should think from the blood count the condition was undoubtedly secondary anemia and the differential count, while it might incline to a possible diagnosis of rickets would have only a very slight weight in that direction. It is characteristic of the blood of childhood to find mononuclear cells increased at the expense of the polymorphonuclear and in them I do not think it points to any particular condition. It might just as well be an indication of inanition, using that term in its broadest sense, as of any disease. It is not unlikely that nephritis might be the causes and I have seen in children nephritis, with albumin and without casts, confirmed *post-mortem*, and not an interstitial but a parenchymatous nephritis.

DR. F. S. PEARCE.—I think in regard to the second case exhibited by Dr. Miller that it is probably one of rachitic secondary anemia. The child seems to be a typical rachitic individual. There are enlarged epiphyses of the long bones of the forearm, enlarged abdomen, beaded chest, and the general aspect of the child is that of rachitis plus anemia. Under hygienic surroundings the child would probably get perfectly well.

DR. ALFRED HAND, JR.—While this is possibly a case of secondary anemia dependent upon either rickets, or a gastrointestinal condition and unhygienic surroundings as Dr. Miller be-

lieves, we must bear in mind the results of the urinary examination and be sure that there is not a chronic interstitial nephritis. This, of course, is rare in children, but it does occur, especially where there is any hereditary influence; I believe that one case in a child under two years has been reported and other cases in children of from five to twelve years of age where there has been a distinct family history. Whether this is a congenital case or not I do not know, but the child has been through one infectious disease, diagnosed measles, which might possibly have been scarlet fever, with resultant nephritis. The persistently low specific gravity is the strongest feature, to my mind, in favor of this condition. Albumin does occur in chlorosis and in grave secondary anemias and usually in chlorosis the urine is light in color, but not necessarily always low in specific gravity. I have seen chronic nephritis in older children, with cardiac hypertrophy and high-tension pulse, the urine always being of low specific gravity. This child presents almost no symptoms except the pallor, and yet the condition has progressed steadily. The rarity of chronic interstitial nephritis in children should not exclude it in this case.

My examinations of this patient's blood for the plasmodium of malaria were always negative.

DR. MILLER.—In answer to the inquiry about the cracked-pot sound, I thought it was present above and below the clavicle on deep percussion.

In the anemic child the signs of rickets, I think, are slight. There is only slight rachitic rosary, and there is but slight enlargement of the epiphyses. As to the decayed teeth, we see this condition in other diseases than rickets.

I would like to call attention again to the very great improvement in this case of chronic phthisis. The child has had for months tubercle bacilli in her sputa and a condition of hectic and sweats, and, coincident with the fever, constant expectoration and no appetite. The child has gained between six and eight pounds, and that in the general ward of the hospital. The treatment has been good feeding, better surroundings and increasing doses of creosote. She is now taking six drops three times a day.

DR. JOHN M. SWAN presented a

CASE OF CHRONIC VALVULAR ENDOCARDITIS AND ACUTE NEPHRITIS
FOLLOWING CHOREA.

The patient, a girl, was eight and one-half years of age when first seen. She had been treated for arthritic symptoms in 1897

and on the first of March of the same year she developed chorea. There was soft, basic murmur at the time of the first examination after the beginning of the chorea. In June, 1898, the patient presented the symptoms of broken compensation and a mitral systolic murmur, transmitted into the axilla, a mitral diastolic murmur, not transmitted, and an aortic systolic murmur, transmitted into the carotids, were heard. At that time the pulse was 142 and the respirations were 40 per minute. After a short course of treatment the patient was sent to the country, and while away from home she developed an acute nephritis that was manifested by edema of the face, the hands, and the feet, by a well-marked ascites, and by 0.2 per cent. albumin, and hyaline casts in the urine. There were no pleural effusions. In October, 1898, the patient had an attack of polyuria and began to improve, so that in April, 1899, she was able to be about. In February, 1900, she was attending school and doing light household duties. The murmurs of mitral regurgitation and of aortic obstruction were still present. The urine contained 3.6 per cent. urea, no albumin, no casts, and neither glucose, albumin, nor indican. The diastolic murmur heard during the progress of the disease had disappeared and was considered to be the diastolic murmur of mitral stenosis. The treatment was rest in bed, milk diet, hot bath every day, poultices over the renal region, and the use of heart tonics, diuretics and purgatives. The ascites was not tapped.

DR. S. MCC. HAMILL.—It seems to me that the murmur heard at the aortic area is the systolic murmur transmitted from the apex. The accentuation of the first sound and prolongation of the murmur lead me to suspect a mitral stenosis as well as mitral regurgitation. At any rate, the lesion seems to me to be almost exclusively of the mitral valve.

DR. F. A. PACKARD.—From a hasty examination I should say that Broadbent's sign is present. I think there is a strong suspicion of pericarditis.

DR. F. S. PEARCE.—An important point in this case is the old time question of the relation of rheumatism, chorea, and heart disease, and I think it demonstrates that the same autochthonous poison may be the cause of the rheumatism, the chorea or the heart disease. To my mind it is not at all impossible that a good many cases of chorea are due to the rheumatism affecting the serous membrane of the brain, this in turn irritating the motor cortex. This child had but the one attack of chorea, but has had

marked rheumatic pains many times. In a good many cases of chorea in which I have watched, pains had been a notable feature in the previous history. The children under treatment have entirely recovered from the rheumatic condition, and thus have become less liable to recurrent attacks of chorea. On the other hand, there are cases which we cannot associate so intimately with rheumatism—where there is no history of pains. In these recurrence of chorea appears more frequently. It is possible that the rheumatic irritant in the latter instances simply affects the serous membrane, the arachnoid. A history of rheumatism in the family frequently will aid in indicating therapeutics in the rheumatic type of the disease.

DR. SWAN.—I feel sure that the aortic systolic murmur is the murmur of aortic obstruction. I have listened to it many times and it has been of quite different character from the murmur heard at the mitral area. It has been always transmitted into the carotids. I want to express my thanks to Dr. Packard for suggesting the possibility of the presence of Broadbent's sign. There has never been anything in the case to suggest pericarditis to me, but pericarditis may be present.

DR. J. H. MCKEE read a paper on

A LARGE SARCOMA OF THE KIDNEY WHICH WAS OPERATED UPON WITH
OPERATIVE RECOVERY.

An incision was made through the left rectus muscle and this enormous mass immediately presented in the line of incision. The capsule of the tumor was densely adherent to both layers of the meso colon. The separation proved most difficult, for there was danger of rupturing the large blood cysts which are so often found in these tumors. In spite of these, however, the operation was performed with little loss of blood; probably not more than an ounce. There was considerable shock and normal salt solution was given subcutaneously during the whole operation, and toward the end intravenous injections were given. Dr. Morton, who did the operation, also left two or three quarts of saline solution in the abdominal cavity. Drainage was insured by a counter incision through the loin. Some of the post-peritoneal lymph nodes on the left side were found to be distinctly enlarged, and it was impossible to remove them.

DR. GEORGE WALKER has found in a study of 145 cases four of these children who have passed the three year limit; one of Schmidt's, two of Abbe's and one of Israel's, Israel's patient

having lived more than six years after operation. Czerny in 1890 reported five cases that had passed the limit of five years. (?) One of Abbe's two cases, that of Julia D., has been cited a great many times. One learns with regret that she has had a fatal recurrence after more than four years.

This specimen represents a decidedly rare form of tumor. Dr. Kirkbride, who has made a very careful study of it, was inclined to think it an endothelioma. There have been very few of these tumors seen; about three in 145 cases critically examined into by Walker.

DR. ALFRED HAND, JR., exhibited a specimen of a

SARCOMATOUS KIDNEY REMOVED FROM A CHILD TWO YEARS OLD.
OPERATIVE RECOVERY.

There was rapid growth with practically no family history at all of malignancy. When operated on the child was twenty-two months old. It had been in the Children's Hospital about four months previously with conjunctivitis. It had seemed in perfect health and had gone out, but came back to the dispensary in July, the mother having noticed a few days before a lump in the left side. Dulness was continuous with that of the spleen. The blood examination was negative as was the urine examination. The parents objected to operation until the rapid growth showed them that nothing else could be done. After opening the abdomen, the child was in such a bad way that Dr. Wharton was about to abandon the operation, when the upper part of the tumor ruptured, necessitating the finishing of the operation. The child recovered and left the hospital in a month in good health. The specimen shows that the sarcoma is within the capsule of the kidney, involving the upper part almost entirely. The remaining kidney structure is atrophied and cystic.

There has been recurrence, with death six months after the operation.

Operation in these cases is not only justifiable but advisable. Even if we feel that the child is going to die or have recurrence probably inside of the three year limit, we give the child a period of life with comfort, and there is the possibility that in that time some one might discover by accident or design some prevention for metastasis.

Current Literature.

MEDICINE.

Bartels: A Case of Opium-Poisoning in an Atrophic Child of Ten Weeks. Faradization of the Phrenics for Ten Hours, Followed by Recovery. (*Münchener Med. Wochenschrift.* No. 5. 1900.)

The patient, a feeble female baby, ten weeks of age, showed the typical signs of malnutrition and the hydrocephaloid condition of ill-fed infants suffering from cholera infantum. Although put on rational treatment and dietetic management the number of the movements did not diminish. A medicine containing, among other things, a minute quantity of opium was therefore given. As the baby was very restless during the night, the nurse gave several large doses of the remedy. In response to an urgent appeal, the author saw the baby at eight o'clock the next morning and found it apparently dead. It was of a pale, livid color, felt cold to the touch, no respiration, no pulse nor cardiac action could be determined. The reflexes had entirely disappeared even from the half-closed eyes. As the appearance suggested death from opium poisoning rather than from cholera infantum, treatment for the former condition was begun at once. There was apparently no result from the routine treatment, as artificial respiration, irritation of the skin, rhythmical traction on the tongue, etc. As soon as faradization of the phrenics was started by the use of a battery sent for in the meantime, a short, feeble inspiration took place. This faradization was kept up altogether for ten hours, a large flat electrode was kept over the epigastrium and a small one over the phrenic nerve in the neck. Electricity was applied intermittently and alternately on both sides about fourteen to sixteen times a minute. Even four hours after this treatment had been started there was no radial pulse, no spontaneous respiration or movement of any kind. At the end of ten hours the body began to get warm. Artificial means to keep up the body heat had to be employed until then. The reflexes and respiration returned. The baby recovered entirely from the effects of the poisoning, had no more diarrhea and thrived nicely.

Köppen, A.: Constipation Produced by Fissure in Ano in Infancy. (*Der Kinderarzt.* March, 1900.)

A certain number of cases of habitual constipation are due not so much to faulty composition of the food as to fissure. This pathological condition is very easily brought about in infants by an occasional attack of constipation, where the passage of a mass of hardened fecal matter produces a slight tear at

the junction of the rectal mucous membrane with the skin. The pain occasioned by the passage of feces over the fissure will cause the child to resist the desire to defecate as long as possible. It happens then that the movement, when it finally does take place, intensifies the lesion. Mild cases of this affection are often cured by the dietetic means employed to overcome "habitual constipation." Severer cases need local treatment. Ichthyol has been very satisfactory in the hands of the author when applied to the fissure with a small camel's hair brush. Where this has not the desired effect a small enema of pure olive oil, from three drachms to one ounce, according to the child's age, is injected into the rectum at night. This softens the feces, protects the fissured mucous membrane and in this way overcomes the spasm of the sphincter ani. The best way of introducing the oil is by means of a glass syringe having a hard rubber point. This point should be conical and slightly flattened from side to side, as the anal opening is oval and not round in shape. The application has to be done gently and any resistance on the part of the sphincter has to be overcome by the utmost patience rather than by force. The treatment with ichthyol in these cases is the same as in the milder ones.

Sack, N.: Acute and Chronic Adenoiditis. (*Deutsche Medicinal Zeitung.* Nos. 83 and 84.)

Simple inflammation of the pharyngeal tonsil is called adenoiditis by the author, who reports a case. The symptoms in this and in similar cases are more or less febrile disturbance, painful deglutition, impaired nasal breathing and a restless sleep. There is also in some cases earache, a dry irritating cough, and after two or three days, a thick purulent discharge from the nostrils. Inspection shows considerable enlargement of the gland, which is of a yellowish-red color, while the posterior wall of the pharynx is also reddened and swollen. The position of the tonsil at the junction, the posterior nasal space and the pharynx with the Eustachian tube explains these different symptoms. In some cases the author has observed swelling of the cervical lymph nodes, sometimes quite painful in character. This symptom leads him to a consideration of the so-called glandular fever described by Pfeiffer. It is his opinion that the group of symptoms described under that name, is caused by some acute inflammatory condition situated somewhere in the nasopharynx, and that in most cases this condition is an acute adenoiditis. He has seen this acute condition become subacute, lasting for weeks and some time for months. On account of the accumulation of pus in the crypts and folds of the gland the febrile disturbance continues for a long time. He thinks it likely that such a condition is the true explanation of some of the cases of protracted influenza

described by Filatow (*Medicin der Gegenwart.* 1899. H. iii., page 131.)

To the list of well-known symptoms of chronic adenitis: as chronic nasal catarrh, headache, mental apathy headaches, he adds nocturnal enuresis and restless sleep. In some cases there seems to be a connection between chronic adenitis and infantile tuberculosis developing somewhat later.

Lipes, H. J. : Dermatitis Gangrenosa Infantum. (*Albany Medical Annals.* Vol. xxi., No. 1.)

The article is an exhaustive report of the literature of gangrene of the skin in children. The history of a case of so-called spontaneous form is narrated. A girl of two years and three months was admitted to the hospital without any history of previous illness. When she was seen there was a small lesion at the end of the thumb which healed tardily and left a pigmentary stain, while on the tip of the little finger of the same hand there appeared a similar lesion which affected the matrix and partially destroyed the nail.

Family history, tubercular. The father died of tuberculosis. The mother was in a well advanced stage of the disease. A brother of the patient was an inmate of the Child's Hospital for four years, suffering from a most obstinate hip-joint disease. This tubercular tendency was traced back several generations.

One morning it was noticed that the child was restless, more irritable than usual and somewhat feverish.

On the first examination there appeared to be an immense flattened bulla extending from a point a little below the umbilicus, upward for a distance of 12 to 14 cm., the transverse diameter being somewhat less. This blister had ruptured spontaneously, so that it was flattened except at one or two small points near the right lower margin, which had the appearance of isolated bullæ, and on being punctured discharged a seropurulent substance. The whole lesion appeared like a large blister from a severe burn. The margin of the lesion was an intense red, changing gradually to purple. The dermis became gangrenous and gradually sloughed off, beginning at the circumferences, leaving a denuded area from which a profuse exudate appeared. There was a secondary extension downward reaching nearly to the symphysis, but no resulting gangrene, and which healed rapidly, leaving a deep purplish pigmentation.

After the development of the abdominal lesion there appeared several erythematous spots, varying in size from a split-pea to that of a twenty-five cent piece, about the anterior surface of the neck and upper anterior margin of the thorax. From the centre of some of these areas appeared bullæ, while they did not develop in the others. The contents of the bullæ were absorbed or removed by puncture, and the lesions, which were

of a less severe type, healed without gangrene. There also appeared a bulla on the right upper eyelid and one on the scalp near the lambda. There was a dark purplish ring about the central portion of partially devitalized dermis; this discoloration gradually fading disappeared about the fifth week. The erythematous areas in which no bullæ developed disappeared more quickly. The abdominal lesion healed slowly by granulation.

At no time did the child have any pronounced fever. She rested well and took her nourishment without difficulty and did not seem to suffer except when the abdomen was dressed.

The urinary analysis gave a trace of albumin, but was not otherwise abnormal.

Four weeks after the first appearance of the lesion a condition corresponding to that of post-diphtheritic paralysis was noted. Mental apathy was marked. There was a weakness of the cervical muscles—the child not being able to support her head, and later she could not sit up without support. The arms were moved about indifferently, while the legs were symmetrically paralyzed—there being no motion whatever. There was loss of the knee-jerk. No change in the power of accommodation or reaction of the pupil to light was discovered. The bladder was not affected.

This temporary paralysis lasted some weeks, when it gradually began to disappear, the loss of motion in the legs enduring the longest. Recovery was now perfect.

The prognosis in these cases is very uncertain.

The treatment consists in the use of tonics, iron, quinin and good food, and the local application of antiseptic dressings.

Packard, F. A.: Report of Five Cases of Endocarditis Occurring in the Course of Tonsillitis. (*The American Journal of Medical Sciences.* Vol. cxix., No. 1.)

Five of the four cases reported were observed in children fourteen years of age and under.

The first patient was a boy aged four years who had never shown any cardiac lesion. He had an attack of tonsillitis with a systolic cardiac murmur at the apex. The apex beat was found to be to the left by about 4 cm. One year after the attack he had a blowing systolic murmur at the apex, well transmitted to the left anterior axillary line, and an accentuation of the second pulmonic sound. The right border of the cardiac dullness was at the right edge of the sternum, and the apex beat was in its normal position.

Case II. was a school girl of fourteen years who had had no symptoms of cardiac lesion. She had a mild attack of angina with catarrhal inflammation of the pharynx. The heart became irregular, but there were no signs of organic change. One year later she had an angina, with a temperature of 100° F. and a pulse of 108. There was at the cardiac apex a loud, clear-cut

systolic murmur transmitted to the left axillary region. At the time of the report there were a systolic apical murmur with accentuated second pulmonary sound and a slight cardiac hypertrophy.

Case III. was that of a boy six years old who had a sore throat with fever. He had a systolic murmur with pericarditis. A month after the illness he had a presystolic and blowing systolic murmur at the apex of the heart with the second pulmonary sounds accentuated. There was cardiac hypertrophy.

Case V. was a boy aged five years. He had enlarged lymph nodes below and behind the ear. There was no visible trouble in the throat. The heart showed a musical systolic murmur at the apex.

After a careful review of the literature of tonsillitis in its relation to cardiac disease, the author states that his report is for the purpose of calling attention to a grave complication and sequel to a slight primary disorder and to a possible factor in the causation of many otherwise unexplainable cases of cardiac lesion.

It would seem rational to look upon tonsillitis as an infection, and view the cardiac lesions as due to the entrance of a microorganism into the system or to the absorption of toxins from the tonsils and pharynx. These same factors may cause the arthritis in this class of cases.

Thomas, J. B.: *Diplococcus Intracellularis Meningitis.*
(*The Brooklyn Medical Journal.* Vol. xiv., No. 2.)

The specimen shown was obtained from a lumbar puncture in the case of a little girl who had pressure symptoms and meningitis. It was mentioned that the spinal fluid containing the diplococcus intracellularis meningitis of Weichselbaum, which Councilman has described as diagnostic of the epidemic form of meningitis, was from a sporadic case, the only one in a family of several children.

Owen, Edmund: *Clinical Lecture on Case of Scurvy-Rickets in Boy of Twelve Years.* (*British Medical Journal.* No. 2034.)

After describing a case falling under the head of the scurvy-rickets of Cheadle, or hemorrhagic rickets, he discussed the condition and its etiology, the boy's age making the case an exceptional one, as it rarely occurs after three years. The boy was anemic and sickly with spongy gums and loose teeth. The abdomen was swollen and the liver and spleen slightly enlarged. The urine contained a considerable amount of blood. The ankles and feet were edematous. There was considerable tenderness. The boy had persistently refused to eat fruit and vegetables and had very little milk. The correction of the diet is the most important means of treatment. It is not a disease of

the poor, but rather of the well-to-do, and this is attributed largely to the prepared foods used for hand-reared infants. The disease is as yet unknown in the west of Ireland, and has only of late years made its appearance in some other parts of the world. It seems to go with civilization.

Moussous: Statistics of Typhoid Fever Cases Cared for in the Medical Clinic of the Children's Hospital of Bordeaux. (*Arch. de Méd. des Enfants.* Vol. iii., No. 5.)

Since publishing the results in 60 cases of typhoid fever observed from 1890 to 1894, Prof. Moussous has studied 46 other cases in children. Of these 106 cases, all but 3 were completely cured; 1 died during convalescence, and 2 were removed from the hospital by their parents. Twenty-six cases were very severe, as evidenced by the height and duration of the temperature, the severity of the nervous symptoms and the presence of complications. The good results in all these cases were undoubtedly due to their careful nursing and to the use of baths. Fatal complications are certainly rare in typhoid cases which have been given the baths in time. The treatment must be adapted to each individual case, the usual thing being to begin with a bath of 28° or 30° C., but it may have to be 32° C.; and if the temperature is not sufficiently affected, the water may be cooled to 26°. This bath, given for six to ten minutes, produces as good and lasting results as those obtained with colder water. The really cold bath is of value as a nervous stimulant in cases where the typhoid stupor prevents the patient from taking food; it must then be of short duration. Again, when the hyperpyrexia becomes extreme and threatens danger, the really cold bath may be given and the patient left in it for some time. Fatal syncope did not occur among these cases, although there were many slow, feeble, and irregular pulses. Hypodermics of caffeine were given such patients, and the baths continued. If the baths are given early enough to habituate the patient to them, and they are not too cold, the danger of syncope seems to be slight.

Breton: Vomiting Due to Rhino-pharyngitis and Adenoids. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 5.)

A boy of five years, of good family and personal history, began to have attacks of vomiting which recurred daily and caused the child to become weak and anemic. All symptomatic treatment proved of no avail. There was dilatation of the stomach, cecum and transverse colon, large adenoid vegetations on the pharyngeal wall, and a double rhinitis most marked on the left side. The adenoids were removed and the rhinitis cured. Vomiting then ceased entirely, the child gaining appetite and weight. Later there was some return of the vomiting, due to a relapse of the rhinitis; but on treating the nose all vomiting ceased.

These severe paroxysms of vomiting were undoubtedly due to chronic inflammation and hypersecretion of the mucous membrane of the nose, pharynx and tonsils. The adenoid vegetations were the primary cause of this inflammation.

Walbaum, O. : The Ependyma of the Cerebral Ventricles in Tuberculous Meningitis. (*Virchow's Archives.* Vol. clx., No. 1.)

In almost every case of tuberculous meningitis small nodules are present in the ependyma. These may be deep-seated, anatomically characteristic tubercles, or superficial cell masses caused by tubercle bacilli which have wandered there from the cavity of the ventricle. Again, there may be nodules characteristic of a granular ependymitis, and these may be secondarily invaded by tubercle bacilli and show some round cell proliferation. Only the first two varieties are characteristic of tuberculous meningitis, and they are rarely absent.

Froin : Subacute Tuberculous Ulceration of the Pharynx and Larynx. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 5.)

A girl of fourteen years came under observation for suspected angina. Cultures showed the presence of pneumococci and streptococci, and the appearance of the throat in no way resembled diphtheria. Yellowish pus covered the posterior wall of the pharynx, while there were superficial ulcers on the vault; the anterior faucial pillars were partly destroyed, and the posterior pillars were red and ulcerated at their borders. Both tonsils were deeply ulcerated, the uvula edematous. The throat was pale and a fetid odor was present. The glands at the angles of the jaw were enlarged, especially on the right side. Deglutition was painful, and liquids regurgitated through the nose. Tubercle bacilli were found in smears from the tonsils. It was ascertained that the child's father had died of tuberculosis. Although there was no cough, râles were present in the chest; there was also marked albuminuria, and pain in both ears was complained of. The throat lesion progressed slightly, then remained stationary; but the pulmonary signs increased rapidly, and death occurred in six weeks. At the autopsy the ulceration was found to have destroyed the greater part of both tonsils and extended to the base of the tongue and to the borders and laryngeal surface of the epiglottis; there were miliary tubercles on the mucous membrane of the larynx beneath the vocal cords. The apices of both lungs contained cavities; the small intestine showed many tuberculous ulcers, especially in the lower ileum, and in the right kidney there was one calyx entirely filled with cheesy material.

Meunier: Extra-Pulmonary Localization of the Bacillus of Pfeiffer. (*Le Progres Médical.* Vol. xi., No. 2.)

Three unusual cases of grippe were studied. The first was that of a child twenty months old who had a suppurative pleurisy due to the influenza bacillus. The second baby, sixteen months old, died of cerebral meningitis, caused by Pfeiffer's bacillus; and the third case was one of suppuration of the femur in a child of six years. In all the influenza bacilli were found in large numbers and in pure culture. While meningitis due to this bacterium has been noted before, these seem to be the first cases of purulent pleurisy and of purulent osteoperiostitis of similar origin thus far observed.

Katz, A.: Two Very Rare Varieties of Phlegmonous Angina in Children. (*Le Progrès Médical.* Vol. xi., No. 13.)

The first case was one of abscess of the uvula in a five months' old nursing baby. The symptoms were those of a retropharyngeal abscess; intense dysphagia and dyspnea with paroxysms of suffocation. Upon incision several grammes of pus were evacuated, and the symptoms ceased at once.

The second case occurred in a boy eight years of age, during convalescence from an attack of measles. There was a phlegmonous periamygdalitis, making a nut-sized tumor at the base of the tongue in the glosso-epiglottic space and causing laryngeal edema with alarming attacks of suffocation. The abscess was incised and six grammes of yellow, not fetid pus removed; improvement was immediate. Such a localization of phlegmonous angina in children is extremely rare, no similar case being recorded in medical literature, though adult cases are described.

Steele, D. A. K.: Report of a Case of Cerebellar Tumor; Death; Autopsy. (*The Chicago Clinic.* Vol. xiii., No. 1.)

The patient was a boy of thirteen. At the time of birth he was almost asphyxiated, being resuscitated after considerable effort. No instruments were used. At the age of four years he had malarial fever. When six years old he manifested abnormal nervousness. This passed off in about six months. When about eight or nine years old he suffered from severe epistaxis, and in his eleventh year he had what were called bilious attacks. The contents of the stomach were ejected with great violence. It was supposed that he was suffering from toxemia due to bile absorption, which caused the headaches, jaundice, nausea and vomiting. The mother noticed a slight unsteadiness in the gait, but this was not marked until he was about twelve years old. The eyes were slightly affected, so that he held his book to the left in reading, and noticed spots

before his eyes; also complained of diplopia. He was confined to his bed, had very little pain, lay in a semi-comatose condition, had little or no vomiting. When he began to recover he remarked that all the days seemed dark. The sight was tested and it was found he could not count the fingers. This was after he had been ill for three or four weeks, and there was considerable bile in the blood and urine. His gait began to be more unsteady, the unsteadiness gradually increasing until four weeks before he was brought under observation, when he was perfectly helpless. He had severe vomiting, preceded by nausea and markedly of the projectile variety, the matter ejected being merely mucus without bile. Often in the night or during the morning he complained of most fearful headaches, which were frequently accompanied by vomiting. The headaches were referred to the forehead, but seemed to radiate more or less over the whole head.

When he entered the hospital the gait was very unsteady, tottering and irregular, ataxic in character. His head had always been large. When examined he seemed fairly well nourished, had exaggerated ankle clonus, more marked in the left foot than in the right; coordination greatly impaired. Terrific headaches following vomiting spells; totally blind; pupils dilated; hearing nearly normal; smell impaired, but various odors recognized; taste normal; touch somewhat blunted. No appreciable nerve impairment in either auditory nerve. Double optic atrophy. Secondary congestion of veins had lessened, and they were smaller than normal, while arteries were threadlike.

An X-ray photograph did not give anything definite. As the symptoms of the boy grew worse, there were involuntary evacuations from the bladder and bowel, and an increase in the severity of the headaches. Trephining was done over the right frontal lobe to relieve the intracranial pressure. As it was not considered justifiable to remove the cerebellar tumor, an opening was made about half an inch to the right of the median line, well in advance of the motor area. After exposing the brain, a needle was passed downward and backward through the brain tissue, and at the depth of about an inch it entered a free cavity. When in the free cavity fluid escaped, and it seemed that the needle had entered a cyst. The fluid was clear, saline, normal, cerebrospinal fluid. After the withdrawal of two or three ounces, the needle was taken out and brain was incised. It was found that the cyst was really a greatly distended lateral ventricle due to internal hydrocephalus. After the escape of eight or ten ounces of this fluid, the ventricle was packed with strips of iodoform gauze. The boy did well for thirty-six hours, when high temperature developed and he died.

At autopsy there was found to be a cerebellar tumor situated in the left hemisphere of the cerebellum close to the median line

and pressing upon the right and middle lobes of the cerebellum. Microscopical examination showed the typical structure of a glioma, quite vascular in character.

Wrinch, Horace C. : A Case of Interstitial Emphysema.
(*The Canada Lancet.* Vol. xxxii., No. 5.)

A little baby of six and a half months had been well until three months old, when he developed a slight cough. The cough was persistent and was treated with mild expectorants. The baby's growth was then observed to be less rapid than before. No history could be obtained from the parents, but subsequently the father was found to be phthisical, with tubercle bacilli in his sputum.

The baby developed a soft swelling above the clavicle on the right side of the neck. The next morning the swelling had extended considerably. The skin of the neck was distended all round except over the surface of the trapezius muscles. The inflation had not extended on to the face but had followed up the space between the ramus of the jaw and the ear on the left side, and was beneath the scalp nearly to the middle line. Downwards, it extended over the chest as far as the lower attachment of the great pectoral muscles. It extended out on to the shoulders and into the anterior fold of the axillæ but not posterior to these points. On the third day the inflation had extended farther beneath the scalp and down the chest. On the fourth day it had reached the scrotum, distended it to large size and passed down over Poupart's ligament at the internal ring. Some inflation had also reached the dorsal surface of the body from the left side.

Death occurred on the morning of the sixth day from the time the swelling was first noticed.

Other symptoms observed were rapid pulse, distress on coughing, breathing labored and jerky, temperature slightly above normal. During the last three days there was marked retraction of the subcostal region during each inspiration. There was also some dilation of the capillaries over the most distended areas, but on the whole the nutrition of the skin was not much impaired.

On *post-mortem* examination, the subcutaneous tissues of the chest were dry and almost bloodless. Air could be squeezed out. There was a condition of pneumothorax on the left side and the air rushed out as soon as the pleural cavity was perforated, the lung being found collapsed and lying at the posterior part of the cavity. There was no effusion or adhesion. The lungs showed a number of large and small emphysematous bullæ beneath the pleura. These could be traced from the root of the lung up into the neck, suggesting the probable source of the air in the subcutaneous tissues. In the right pleural cavity

there was no air or fluid, but the lung was firmly adherent to the parietes over the upper and middle lobes.

Microscopically the left lung was in a condition of miliary tuberculosis without any cavities. The right was riddled by cavity formation in its upper and middle lobes. The spleen showed tubercles.

Stained specimens from liver and spleen showed tubercle bacilli. Bacilli were found enclosed in giant cells and not in tubercles. In the lungs the bacilli were present in immense numbers.

Microscopically the liver was found in a condition of marked fatty degeneration.

It was considered important that diagnosis should be made between the simple emphysema and that due to the action of the bacillus aerogenes capsulatus.

Finlayson, James: Case of Sarcoma of the Stomach in a Child Aged Three and a Half Years (*British Medical Journal*. No. 2031.)

Sarcoma of the stomach seems to be uncommon at any age, but in early life it is very rare, and this is the only case known of by the author. The boy was three and a half years old when he was admitted to the hospital. He was feeble, with great pallor, and slight indications of rickets. There was no history as a cause of the pallor, which seemed to have been noted about three months previous after an attack of vomiting of short duration. This vomiting was not associated with any appearance of blood; it was followed by disturbed action of the bowels—at first constipation, latterly intercurrent diarrhea. The mother thought there had been some tarry motions, yet nothing of the kind, indeed no blood in any form was seen in the movements from the bowels during the time the child was in the hospital. Only once was there some brownish fluid like altered blood brought up from the stomach while the child was under observation. Even this was questionable, as he had some raw meat juice about twelve hours previous to the vomiting. There seemed to be no pain anywhere, no tenderness in the abdomen, which was slightly distended. No tumor could be felt. After a time on careful search the spleen, as it was supposed, was felt high up under the left ribs. The enlargement, if any, was put down to rickets. It is questioned whether the spleen felt any larger than normal, but after death the question arose as to whether it might not have been the tumor of the stomach instead of the spleen. The aspect of the child throughout was that of extreme apathy; he was listless. During periods of slight improvement he would brighten up for a few hours, but these were usually of short duration. Even when the dullest he could speak and tell his name. An exami-

nation of the blood showed no excess of the white blood cells; the enumeration gave 3,200,000 corpuscles per c.mm.; no poikilocytosis. Five weeks later the enumeration was noted as 2,560,000, with hemoglobin at 20 per cent. There was a gradual reduction at other examinations. No alteration in the shape of the corpuscles was found. The enlargements of the lymph nodes were too trivial to warrant any importance. It was clear that the case was not one of leukemia; pernicious anemia was thought to be the probable explanation of the disease, as there was a progressive pallor with a sallow tinge of the skin; but the deterioration of the blood seemed comparatively slight and cases of pernicious anemia are not frequent.

An examination of the fundus of the eye showed no hemorrhages. There was a temperature range of 100° to 101° or 102° F., occasionally reaching 103°. An examination of the thoracic organs did not show anything abnormal; latterly a systolic murmur was heard at the apex. No albumin was detected in the urine. Towards the end of life a little puffiness of the feet and hands and even of the face was noted, and a slight loss of weight before death. The appetite was poor, the child seemed to prefer milk; but was so apathetic as to seem rather indifferent to food. The vomiting was a prominent symptom. It was first only occasional, then it became more frequent; could not be traced to any special relationship to feeding or any other definite cause; the vomited matter was not suggestive of anything special. The state of the bowels was usually troublesome as regards diarrhea and called for treatment; constipation, however, alternated with this. The child died exhausted with a terminal pyrexia with pulmonary congestion. The autopsy showed the following:

The stomach presented a firm bulky tumor in the posterior wall, closely impinging on the greater curvature, rather nearer the cardiac than the pyloric orifice. It had an almost equal projection externally and internally. It measured on the mucous side 2.5 by 2.5 cm., the submucous infiltration being about 3 cm. in length. On the serous side it measured 4 by 4.5 cm.; it projected 1.8 cm. The tail of the pancreas was somewhat closely related to the tumor, but dissection showed it to be completely separated by a thin veil of connected tissue. On the mucous aspect of the stomach was a small circular area with depressed centre and obviously infiltrated edges. The central portion of this was the only part conveying the impression of ulceration, and even there the appearance was not conclusive. Many of the lymph nodes of the mesentery were slightly enlarged, but on microscopic examination they gave no evidence of being involved. Microscopically the tumor was found to be highly cellular; the degree of cellularity was increased in that portion immediately under the mucous coat of the stomach. The predominant cell-type of which the tumor

was composed occurred in the form of prominent spindle-shaped elements. The nuclei of these cells were large, with rather faintly staining and coarsely granular nucleoplasm. Their form was for the most part fusiform but here and there larger and more irregular nucleo-forms were seen. In addition to these larger cells and occurring among them were a considerable number of smaller spindle-shaped elements, the protoplasm of whose nuclei stained deeply and in a homogeneous fashion. Internally the glandular elements of the mucous membrane were detected over the tumor, although considerably diminished in size by the loss of superficial substance. The connective tissue supporting the cellular tumor tissue was very scanty in amount; the tumor was tolerably vascular, the thin-walled vessels being of small size. The spleen was of normal size. Other organs negative. The author has been unable to find records of any definite cases of sarcoma of the stomach in young children.

Archambault, J. L.: Remarks on Retropharyngeal Abscess and Pulsating Empyema, With Report of Cases.
(*Albany Medical Annals*. Vol. xxi., No. 2.)

The first case of abscess was in a baby of eight months. It had a suppurative otitis with a skin eruption which was probably syphilitic. The otitis appeared as the cause of the pharyngeal affection. The child did not survive the operation. The second case was that of a girl of seventeen months who had had an attack of measles. It was found that the baby was feverish, uneasy and distressed in swallowing. There was pain referred to the neck and increased with every movement. The throat was red, with free secretion. The following day there was increased stiffness of the neck, but the throat and posterior pharynx did not show much change. There was still an abundant secretion of mucus. The third and fourth days showed no great change in the symptoms, through the immobility of the head and the impossibility of any motion without causing suffering or crying was noticeable. The fifth day the voice had a nasal sound and the difficulty in swallowing had increased, and during the night the liquids were returned through the nostrils. The pharynx was found to be irregular in outline and to bulge. The child was operated upon under chloroform. Denhard's gag was introduced, the tongue was depressed by the forefinger, the child was kept on the left side, the side of the tumor, and the child's face was brought quickly forward and down. No further treatment was made of the wound. A year and a half later the patient was operated upon for empyema. It was found on an examination at that time that there was a soft blowing murmur with the first sound of the heart, with its maximum intensity at the apex. It would be a question

whether this mitral insufficiency should be traced back to the initial measles or whether it would have occurred as co-existent with the pleurisy.

CASE OF PULSATING EMPYEMA.—Pleurisy is called pulsating when the thoracic wall on the affected side is seen to move with rhythmic pulsations synchronous with the pulse and the heart beats. Under this may be included two conditions. The first in which the pulsations cover a wide area of the thorax; the second in which they are confined to a fluctuating tumor which communicates with the effusion. These pleurisies are nearly always left pleurisies; most generally suppurative pleurisies; hence the term pulsating empyema seems perfectly justified.

A girl of four years frequently complained of pain in the chest in the region of the heart. Later on a tumor made its appearance in the precordia. It was small at first but increased rapidly. It was pyriform with a large base, pulsated synchronous with the arterial beatings; reduced slightly under pressure. On auscultation the heart sounds were muffled but normal, there was no murmur; the vesicular murmur was clear and distinct above the tumor up to the apex. On the surface of the swelling the skin was red, tense, thin and quite warm. Puncture showed pus. It was found that the heart pushed the liquid forward by compressing the posterior pocket. There was denudation of the edge of the rib and a costal periostitis with "shirt-stud" abscess. After the operation fistulous tracts persisted for about three months, but finally cicatrization took place without any resection being done. The child died a year later from diphtheria.

A boy was seen four months after an attack of scarlet fever, as he had not been free from a cough during all that time. He had a short continuous cough, an almost livid hue of the skin and an intense dyspnea; pulse was rapid but regular. On the left side under the arm was a round enlargement the size of the palm of the hand. This tumor was pulsating and was located over the seventh, eighth and ninth ribs. It was soft and fluctuating and its beating was synchronous with the pulse. There was no discoloration of the skin over the tumor, no fremitus and no souffle. There was no manifest projection of the intercostal spaces, but quite apparent unilateral chest immobility. Dulness was general posteriorly, extending anteriorly nearly to the collar-bone; slight Skoda's tympany. Thoracic vibrations did not exist in front but were faintly preserved behind near the vertebral column. The heart apex was on the right of the sternum. An exploring aspiration with a hypodermic needle showed the presence of pus. After the aspiration the patient did very well. The cavity was washed out once in two or three days with an alternate solution of boric acid and permanganate of potash. The boy, now nearly twelve years old, has grown rapidly, is tall and slender, and a careful auscultation

reveals no abnormal sign and no difference in the respiratory murmur of the left side as compared with the right; everywhere is found good vesicular breathing, indicating that the lung has not been sclerosed.

Concetti, Luigi: On Some Congenital Malformations of the Colon Causing Habitual Constipation in Children. (*Archiv für Kinderheilkunde.* B. xxvii., H. 5 and 7.)

A normal child began to take the breast on the second day; ten or twelve hours later the abdomen became markedly distended. On the fourth day after the administration of laxatives and enemata, the child passed meconium for the first time. The child was weaned at the end of twelve months, but, although it thrived physically and mentally, it suffered continually from constipation and distension of the abdomen. Dentition was normal. When two and one-half years of age the child's abdomen was enormously distended, there was obstinate constipation, the bowels moving only once in five or six days; sometimes only once in fifteen or sixteen days. A large elastic bougie introduced into the rectum passed in easily for a distance of about twelve or fourteen inches. No obstruction of any kind was found. The child was kept at the hospital for some time and finally died with symptoms of peritonitis. The *post-mortem* examination showed the following condition:

Colon from ileo-cecal valve to beginning of rectum about one-fourth longer than normal, circumference of colon increasing progressively in size to sigmoid flexure, where it measured about eight inches. Circumference of rectum two inches. Walls of ascending, transverse, and of a portion of descending colon much thickened, while those of the lower portion of the descending colon and of sigmoid flexure were much thinned. Mucous membrane of the hypertrophic portion was greatly changed, showing no epithelium and no glands; in some places the muscularis mucosæ being entirely denuded. Muscularis mucosæ and submucous coat were increased in thickness. The transverse muscular fibres were very much increased, but separated in places by bundles of connective tissues. The longitudinal fibres were also increased. The lower thin portion of the colon was only one-third of the normal thickness. Condition of mucous membrane was here as above. Muscularis mucosæ relatively much thickened, while muscular coat was very thin, consisting only of the circular fibres. At the thinnest portion was a perforation. The primary condition in this case was the aplasia of the muscular coat, partial as to the circular fibres, total as to the longitudinal.

This anatomical condition brought about the constipation, as the feces were unable to pass this portion of the intestine,

except by being pushed forward by an accumulation of fecal matter above. Fermentation and decomposition of these masses caused the enormous meteorism. Two sets of phenomena originated, owing to the difference in the structure of the upper and lower portion of the colon. In the lower aplastic portion the muscularis mucosæ became hypertrophic to compensate the insufficiency of the muscular coat proper, which failed to grow from some congenital deficiency. In the upper portion of the colon, which was endowed with its normal anatomical and physiological properties, there was found a marked increase in its functional and formative activity leading to hypertrophy and to hyperplasia. This hypertrophy was sufficient to overcome from time to time the resistance offered by the accumulation of fecal matter in the lower distended portion. The irritation produced by the toxic products of fermentation and decomposition brought on the other changes in the intestine, not only the formation of ulcers, which were scattered all through the colon, principally though in its lower portion, but also the chronic interstitial colitis. This interstitial inflammation in its turn had a tendency to interfere with the compensatory hypertrophy of the muscular fibres, as the new-formed connective tissue not only replaced the muscular fibres but also obliterated the blood vessels of the intestine. Concetti reports another case of a boy eight years of age, who was still living at the time the report was written. He then proceeds to analyze his own and twenty-four similar cases, which he found reported by different observers. where chronic constipation as caused by malformation of the colon other than to that producing stenosis. These cases he divides in three classes.

1. Those in which there is simple elongation of the colon.
2. Those in which there is increase of the transverse and longitudinal diameters and thickening of the wall of the colon, and
3. Simple congenital ectasy of a portion of the colon with or without hypertrophy and dilatation of the adjacent portion of the gut.

In the first class of cases is found an increase in length of the descending portion and of the sigmoid flexure of the colon. In the narrow infantile pelvis, these parts to become doubled upon themselves with the formation of sharp bends. The motion of the fecal matter is retarded but the constipation brought about in this way disappears as the child gets older and the disproportion of the length of the gut and the size of the pelvic cavity diminishes. He proposes to call this "macrocoly."

The second group of cases includes those of congenital megacolon, where the colon is increased in length in the transverse diameter, and in the thickness of its walls. The thickening is due principally to connective tissue proliferation. The prognosis in these cases is less favorable as the structure and the glandular apparatus of the gut are irreparably damaged, although one

of the reported cases reached fifty years of age. The cases in this group are comprised under the name of "megalocoly."

The condition found in the third group of cases the author calls "ectacoly." In these cases are found the anatomical changes described above, if the patient has lived long enough for the secondary hypertrophy to become established; the primary condition being the more or less pronounced ectasy of the walls of the colon with defective development of the muscular coat. It is probable, that in these cases will be found also a defective development of the nervous supply to the malformed portion of the gut. The cases belonging to the second and the third group have been described as "Hirschsprung's disease." The duration of life in the last group is hardly ever more than one or two years. Medicinal treatment is ineffectual. Concetti thinks that perhaps early resection of the ectatic portion and uniting of the unaffected portions holds out a slight prospect of cure. The operation should be done early before changes have occurred in the unaffected portion of the colon, of which especially to be dreaded is chronic interstitial colitis with connective tissue formation.

SURGERY.

Taylor, H. M.: Experience in Operations for Typhoid Perforation. (*Annals of Gynecology and Pediatrics*. Vol. xiii., No. 4.)

Five cases are reported. One of the patients was a boy of seven years. He had been ill with atypical typhoid fever for six weeks, and was at no time in a serious condition. He awoke one morning with a pain in the abdomen. He had vomiting spells, but the pain lessened. There was no evidence of shock. The temperature was 101° F. There was some appreciable rigidity, but no distention and no hepatic resonance. An absence of fever for several days, the sudden onset of pain and vomiting, the recurrence of fever with a pulse of 115, plus the abdominal rigidity and abolished peristalsis, was the group of symptoms which warranted the diagnosis of perforation. Twelve hours later the pulse had increased to 140 and the temperature had dropped to 100.5° F.

On incision over the cecum a quantity of seropurulent fluid escaped, but no gas. A perforation as large as the diameter of a silver probe was discovered in the small intestine. It occupied the free margin of the bowel. The boy made a good recovery. About 200 cases have been reported by Keen and others. Nothing short of a moribund condition should warrant us in abandoning a case as hopeless. The key to success is early operation.

Harte, R. H. : Sarcoma of the Intestine. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 5.)

The specimen was shown at a meeting of the Philadelphia Academy of Surgery. The child, from whom the growth was removed by operation, was five years old. The history indicated a rapid growth. There was a history of traumatism. The abdomen was tympanitic and pressure in the region of the right iliac fossa detected an indistinct mass. The heart and lungs were normal, the spleen was slightly enlarged. In many respects the case resembled one of tubercular peritonitis. In this case the growth began in the submucous coat and afterwards involved the lymph tissue.

Lutz, S. H. : Sarcoma of the Mastoid. (*Brooklyn Medical Journal.* Vol. xiv., No. 2.)

A boy nine and a half years old had severe pain in and a discharge of thick, foul-smelling pus from the left ear. There was a polypoid growth which was removed. There was a granulation condition in the canal. Four months later the mastoid was opened. The bone was apparently solid, but darker than normal. The bone was necrotic and the cavity filled with dark, fetid pus. The parotid gland was also operated upon, because it was involved in the process. The microscopic examination of the specimens showed them to be small, round-cell sacromatous formation with a number of giant cells. The boy died three months after the operation.

Moore, James E. : Acute Suppurative Arthritis of Children. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 5.)

This inflammation is also described as epiphysitis, acute otitis of growing bone. It begins, as a rule, either as a complication or sequela of other diseases, and may begin as a synovitis, an epiphysitis or an osteomyelitis. When it accompanies the exanthemata, diphtheria or typhoid there are usually streptococci. The synovial symptoms are, as a rule, mild. The joints should be carefully examined in young children who have suffered from the exanthemata. The most common error is to make a diagnosis of rheumatism.

When the disease is recognized and treated the progress is good, but when neglected, the joint surfaces are destroyed and the patient's life endangered. The only treatment is free incision and drainage. The openings should be free. It is a mistake to fill them with gauze without drainage tubes, because gauze will not drain pus. When the disease begins in the epiphysis it extends quickly to the joint so that the joint symptoms soon overshadow the bone symptoms.

Of the inflammations beginning as an osteomyelitis there are two well-marked varieties, one in which the symptoms are comparatively mild, and, which under proper treatment, makes a complete recovery. The other form is an acute osteomyelitis with added acute joint symptoms, which, unless promptly and rigorously treated, results in a more or less permanent injury to the joint. Cases are reported to illustrate the symptomatology and treatment of these suppurative joint cases.

Coley, W. B. : Strangulated Hernia in Children. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 6.)

Stranulated inguinal hernia in infants and children is not so rare as might be supposed. He has operated on eight patients under two years of age, with one death. The fatal case was in an infant of eight weeks who was moribund at the time of operation.

In four of the cases the sac contained cecum, and in three of these four the appendix was also found. The author believes that, as a rule, the neck of the sac is not the cause of the constriction. With scarcely an exception herniotomy may be supplemented by an attempt at a radical cure.

The diagnosis of strangulated hernia in children is not usually difficult, though it may be confined with hydrocele of the cord.

Gentle taxis for two or three minutes may be tried. If, after a second attempt to reduce the hernia has been made by taxis, preceded by the application of hot cloths, there is no result, the operation should be done without further delay. TempORIZING is often the cause of death.

Hughes, M. A. : Report of Some Cases in My Practice. (*Denver Medical Times.* Vol. xix., No. 8.)

Hypertrophy and Misplacement of the Lachrymal Gland.—One of these cases was a baby eighteen months old, who had a growth at the outer angle of the right eye and extending to within four millimetres of the sclero-corneal margin. It was thought that the growth was a lipoma. It was situated beneath the conjunctiva, and was transparent and grayish in tinge. The condition was congenital, as the family physician had noticed it at birth. The growth was carefully dissected out and was found to be seven-eighths of an inch in length and five-eighths of an inch in width. Upon a more careful examination it was found to be a hypertrophied and misplaced lachrymal gland and not a lipoma. The little patient made a good recovery. [No note is made of any microscopic examination of the tumor.]

HYGIENE AND THERAPEUTICS.

Kinne, Howard S. : Some Practical Points in Infant Feeding. (*International Medical Magazine.* Vol. ix., No. 2.)

Every doctor who undertakes to care for a child should be a specialist for the time.

To insure success, certain simple but very important rules must be followed when children are breast-fed as well as when they are artificially reared. Of these may be mentioned, (1) regularity of feeding, (2) the length of time the child is allowed to remain at the breast at each feeding, and (3) the avoidance of night nursing.

Frequently colic and disturbances of nutrition are due to failure to observe these rules.

Breast feeding does not agree in all cases. With some babies, who have colic, it is well to remove them from the breast after they have nursed for five minutes and then give them a teaspoonful of hot water; after a little more nursing a teaspoonful of lime-water may be administered. The procedure is simple and is often beneficial because the milk is not taken so rapidly.

All babies should be given water to drink, and breast-fed babies after they are two or three months old will often do well with one bottle feeding a day. Cow's milk is the food for all babies who do not have the breast. It is always necessary to observe the individual baby's needs in the proportions of the modified cow's milk.

Filtration through cotton is advised in place of pasteurization or sterilization.

Written directions should be given for each case.

Murphey, C. E. : Whooping-Cough of Infants, and Treatment to Prevent Complications. (*Atlanta Journal-Record of Medicine.* Vol. i., No. 2.)

Isolation is very important, as children with pertussis may give the disease to delicate infants, who will afterwards develop tuberculous disease.

The rooms should be kept clean and well ventilated. For the first stage of the disease ipecac, squills and citrate of potash are advised. Belladonna in small doses frequently repeated is regarded as very useful in the second stage. Bromid of soda and chloral hydrate are beneficial for night attacks.

Abt, I. A. : Gastrointestinal Infections in Infants. (*Medicine.* Vol. vi., No. 2.)

After a consideration of the forms of gastrointestinal derangements and a mention of the bacteria that have been

described as causative of these disorders he mentions that the pyogenic microorganisms may, under certain conditions, gain access to the gastrointestinal canal and produce symptoms of septic infection. This is particularly true of new-born children. This causation is emphasized in the report of the case of an infant nineteen days old. As the autopsy did not show an infection of the umbilical vessels it was supposed that the primary infection was through the gastrointestinal canal. As conclusions the following are presented:

1. The acute gastrointestinal disorders of children cannot be attributed to a specific form of bacteria.
2. The toxic symptoms of gastrointestinal infection depend upon the introduction into the alimentary canal of poisonous substances which are contained in the food. Vaughan isolated a toxic substance, tyrotoxin, from milk, which was poisonous for man and animals.
3. Bacteria may be introduced from without; or the ordinary saprophytic bacteria which inhabit the intestinal canal may take on a special virulence.
4. The most severe disturbances are caused by the metabolism of bacteria; These microorganisms by their activity either produce acids or cause decomposition of albuminoid substances; the products act as powerful irritants to the intestines, and by injuring the intestinal wall gain access to the blood and lymphatics, in this way producing the local and constitutional symptoms.
5. There can be no doubt that specific intestinal infection may occur in infants. Typhoid fever, though not frequent in very young children, may also occur.

Riegler: Treatment of Diphtheria with Iodic Acid and Hydrogen Peroxid. (*Wiener med. Blätter.* No. 46. 1899. *Der Kinderarzt.* January, 1900.)

One hundred and fifty-five cases of diphtheria of the fauces have been treated by the author by the following method: The faucial mucous membrane is sprayed with a 3 per cent. solution of hydrogen peroxid. As long as the mucous membrane is affected by the disease it is whitened by the action of the remedy. Half an hour after the spraying a small quantity of the following powder is insufflated, one part powdered iodic acid to ten parts of powdered sugar.

The two remedies are used alternately at intervals of half an hour. Where possible a gargle is used in addition to the other treatment. The gargle is iodic acid, $7\frac{1}{2}$ grs.; distilled water, 13 oz.; purified glycerin, 1 oz.

To avoid irritating the lips they should be covered with vaselin before using the spray. Chinapthol is administered by the author as an antipyretic in daily doses of from 15 to 30 grains, divided into $3\frac{1}{2}$ to $7\frac{1}{2}$ grain doses. Every hour a dose of a

5 per cent. solution of sodium benzonate in sherry wine is given.

He advises swallowing bits of ice, cold compresses to the throat and a milk diet. This treatment is of value only in recent cases before the occurrence of toxemia. The six fatal cases in this series were all cases of laryngeal diphtheria.

Wood, E. G.: A Discussion on the Treatment of Diphtheria. (*The Southern Practitioner.* Vol. xxii., No. 1. 1900.)

The following summary gives the author's ideas:

1. Antitoxin, properly administered, has a specific effect on diphtheria.

2. Serum therapy materially shortens the duration of diphtheria and reduces the mortality at least one-half, not only in pharyngeal and nasal cases, but likewise in laryngeal diphtheria.

3. The earlier it is administered the better are the results obtained.

4. It is doubtful if it reduces the percentage of cases of paralysis unless it is given in the first two days of the attack.

5. One large initial dose is productive of better results than repeated small ones.

6. Antitoxin should be administered as soon as the clinical diagnosis is made.

7. It is practically harmless.

8. It is of no value in streptococcus sore throat.

9. The immunity conferred on healthy persons lasts about one month.

Rosenthal, Edwin: Influence of Antitoxin Statistics. (*The Journal of the American Medical Association.* Vol. xxxiii.; No. 25. 1899.)

Reports from the New York Health Department are quoted, giving the following results of antitoxin treatment in four large cities.

In Paris the mortality was reduced from 108-180 to 45-56. In Berlin before antitoxin was used the death rate was 114-117, afterwards it fell to 47-54. In New York the drop was from 236-317 to 168-207. In Chicago a very rapid rise in mortality was effectually checked. Daily death rate being reduced from 8.1 a day to 6.4 per cent. for all cases treated, and 2.5 per cent. for 1,112 cases treated during the first three days.

He points out the surprising lack of enterprise on the part of Philadelphia in adopting antitoxin treatment and enters a plea for more vigorous action in the future.

Coughlin, R. E.: The Present Day Treatment of Diphtheria. (*New England Medical Monthly.* Vol. xix., No. 2.)

The following conclusions are reached:

1. We have in antitoxin a specific remedy for diphtheria.
2. We should use antitoxin in every case of clinical diphtheria.
3. We should use it as early in the disease as possible without waiting for a bacteriological examination.
4. We should employ a supporting treatment along with antitoxin, such as whiskey, strychnin, iron and quinin.
5. If we use antitoxin early in laryngeal cases we will often prevent the necessity of intubating.
6. We should be certain to use a good quality of serum.
7. In severe cases we should repeat the serum in twenty-four hours if there be no improvement and again in twenty-four hours if the course of the disease remains unfavorable.

Fairbanks, A. W., and Grawitz, E.: Experiments upon the Disinfection of Rooms with Formaldehyd Gas in the City Hospital at Charlottenburg, Berlin. (*The Boston Medical and Surgical Journal.* Vol. cxli., No. 25.)

These experiments were made upon germs of the highest virulence: Pyocaneus, diphtheria, typhoid, staphylococci albi, streptococci and anthrax.

The following results were obtained:

1. When the gas was allowed free access to the infected fragments of cloth, a sterilization of the respective fragments occurred.
2. When the infected pieces were placed between two layers of cloth a negative result was obtained only with pyocaneus and staphylococcus. Anthrax, diphtheria and typhoid showed positive growth.
3. When placed between mattresses or wrapped many times in cloth the anthrax showed growth without exception. The others were variable in the results.
4. Dust collected from the rooms gave growth of anthrax only.

They concluded that the gas, in a strength of 2 grammes per cubic metre of air space, is absolutely destructive upon all objects to which it has free access. In the case of organisms of an exceptional virulence an exposure of twelve hours was proven sufficient.

Probst, C. O.: Milk as a Carrier of Infection. (*Medicine.* Vol. v., No. 12.)

Any of the water-borne diseases can be carried by milk, and the most common adulteration of milk is water. By washing

cans in polluted water the milk may be contaminated. When scarlet fever or diphtheria occurs in a family dealing in milk, the mother caring for the sick child may infect the milk while preparing it for market. The milk may be kept in the house or in an adjoining building and it may become infected by the atmosphere.

Milk tickets and milk bottles are often carriers of infection from house to house.

Milk drawn from the udder of a tuberculous cow may contain the tubercle bacillus. It is not necessary that the udder itself be involved, as a cow with a healthy udder can infect her milk. The degree of prevalence of tuberculosis among cattle in the United States is estimated at from 10 to 20 per cent.

To prevent the spread of disease through the agency of milk, the author advises systematic, rigid inspection of the dairy itself and of the persons handling the milk. The milk trade should be regulated by a permit or license system dependent upon the results of inspection. The water supply should be carefully examined. No animal with any degree of tuberculosis should be used for the production of milk. The tuberculin test will detect the presence of tuberculosis in the cow in 96-97 per cent. of all cases, and it should be invariably used. The physician and the sanitary officer must create a demand for healthy milk by keeping constantly before the public the danger of using milk from tuberculous cows. Enterprising dairymen will meet this demand and force competitors to improve their milk. To sum up, we need frequent inspections, a license to sell, a remodelling of cow stables, and the hearty co-operation of the dairymen.

Harrington, Chas.: Disinfection and Prevention in the Sick Room. (*Boston Medical and Surgical Journal*. Vol. cxli., No. 25.)

Isolation to be effective should be absolute, preferably in an upper floor or an L which can be shut off entirely from the rest of the house. Where such an arrangement is not available the room should be closed as completely as possible and the adjoining rooms kept well aired. In preventing dissemination the attending physician can do much by giving careful attention to his own conduct while in the sick room, and to his toilet after leaving it and before going to another patient. Direct sunlight and constant dilution of the impurities of the air by proper ventilation are most important. A series of experiments with several patented and advertised disinfectants in almost every instance showed them worthless. He recommends formaldehyd as being the most effective and at the same time most harmless disinfectant known. The infected objects should be submerged in the solution so direct contact can be obtained and the exposure should continue for at least two hours.

McKenzie, R. T.: The Place of Physical Training in a School System. (*The Montreal Medical Journal.* Vol. xxix., No. 1.)

The writer urges the introduction into all schools of a complete system of physical training. Much harm is done to growing children by the cramped positions maintained for long periods on the school benches. He proposes to introduce free extension movements for five minutes at the end of every quarter of an hour's work. The room is to be well ventilated during this time. Besides this a period of brisk exercise followed by a tepid or cold bath once daily, and for those who are able to take part in them, out-door games should be encouraged under medical supervision. The addition of music lessens the monotony of the exercises.

He does not consider that the average military drill fills the required need.

Rupp, A.: Antitoxin Results and Diphtheria Definitions. (*New York Medical Journal.* Vol. lxxi., No. 4. 1900.)

The writer considers the fundamental characteristics of diphtheria to be a sore throat with pseudomembranous deposits and more or less vital depressions. All the other symptoms, including the presence of the Klebs-Löffler bacillus, he considers as secondary.

He draws his conclusions from the fact that many cases of well-known clinical diphtheria do not show the presence of the bacillus, while in others of remarkably light nature, clinically, the bacillus is found. He states that the only results he has obtained from antitoxin is "peace of mind" after its use.

He advises that not too much confidence be placed in pseudo-scientific statements as shown in Health Board reports.

Krauss, F.: Some Ocular Inflammations of the Newly-Born and their Treatment. (*International Medical Magazine.* Vol. ix., No. 1.)

It is a well-established fact that 33 to 50 per cent. of all cases of blindness in blind asylums have been caused by ophthalmia neonatorum. While early and well-directed treatment will in the great majority of cases result in a perfect cure with good vision, there is no disease in which neglectful and ignorant treatment will result in such complete destruction of the eye sight.

The two diseases which are most frequent in the new-born are a simple catarrh of the conjunctiva and purulent conjunctivitis.

Simple catarrhal conjunctivitis soon subsides under weak and frequently applied antiseptic washes, such as boric acid

solution, ten grains to the ounce of distilled water, or weak astringents, as bicarbonate of soda, two grains to the ounce of water, or diluted camphor water. In some of the more severe types it is necessary to apply with a swab a five grain solution of nitrate of silver, neutralizing the effect by a second swab saturated with a normal salt solution. Cold compresses are desirable in severe cases. In removing the final vestiges of the complaint, a weak solution of zinc sulphate or alum is very valuable, Atropin is used only when corneal complications ensue. In the treatment of purulent conjunctivitis, ophthalmia neonatorum, it is extremely necessary to insist on one thing, namely, absolute cleanliness. In the way of prophylaxis, when this is possible, the vaginal tract should be thoroughly cleansed with bichlorid solution 1-1,000 in the early stages of the labor. Later weaker solutions, 1-10,000 should be used to keep the tract as clean as possible. Immediately after the baby is born the exterior of the baby's eyes should be carefully cleansed with a weak bichlorid solution, which latter should also be used in cleansing the whole of the body. This latter direction is to prevent infection of the baby's eyes by the nurse's hand with the gonococci on the body. The conjunctival sac should be thoroughly cleansed by the doctor himself, using unlimited quantities of saturated solution of boric acid freely applied by a large eye syringe. After that Credé's solution of 2 per cent. nitrate of silver should be used by dropping one or two drops from a glass rod. The conjunctival cul-de-sac should be kept free of pus. It is this pus that causes corneal complications.

The lids should be separated every half hour to allow the escape of the pus, after which there should be a free installation of a warm boric acid solution. Ice compresses should be used almost continuously.

For a mild keratitis a 2 grain to the ounce solution of atropin is advised and a 4 grain solution is to be used if the corneal complications are severe.

Where the destruction of tissue is not too great the everted lids should be painted daily with a 2 per cent. solution of nitrate of silver while there is purulent secretion. The excess of the silver solution is to be washed away with a normal salt solution. As a cleansing agent, a weak solution of permanganate of potassium is to be freely used, especially in the early stages with a free secretion of pus.

Lower, Wm. E.: *Early Intubation in Laryngeal Diphtheria.* (*The Cleveland Medical Gazette.* Vol. xv., No. 3.)

In no small per cent. of the fatal cases the death is due to suffocation from laryngeal obstruction, when intubation is not practiced, or to bronchopneumonia following late intubation. This can be easily understood when we are reminded that in

most cases upon which we are called to intubate, the child is completely exhausted from being insufficiently supplied with oxygen and from continuous laborious breathing. Mucus and septic matter may readily get into the tube and trachea, and quickly produce fatal inflammation. There is no resistance, and scarcely any attempt or effort to dislodge the foreign substance. A bronchopneumonia ensues and the already exhausted septic child quickly succumbs. This is not the case when intubation is practiced at the very beginning of laryngeal obstruction. In late cases the mortality is about fifty per cent.

The advantages in favor of early intubation are: First, the child is stronger, has greater resistance and can bear the operation better. Second, the time for the wearing of the tube is lessened, generally not requiring over twenty-four to thirty-six hours. Third, by shortening the time of wearing the tube the amount of nourishment required is less; there is less opportunity for the introduction of septic material into the trachea, and consequently less chance of septic or bronchopneumonia, which is nearly always the cause of death.

The indication then for intubation is the very beginning of laryngeal obstruction, when the breathing first becomes labored and not to wait for the cyanotic stage, as is now generally done. The first symptoms will be prolonged inspiration, slight stridor, supra clavicular retraction and marked restlessness. Antitoxin, if it has not already been given, should be used at once, in large doses. Nothing should be given by the mouth. Rectal feeding should be resorted to, if any nourishment be necessary; a moist atmosphere in the room is better than dry. By this method the mortality rate in laryngeal diphtheria can be greatly lessened.

Wright, Frank W.: The Prevention of Contagious Disease. (*Medical Record.* Vol. lvi., No. 26.)

To prevent the spread of these diseases two objects must be accomplished: first, the destruction of the poison given off from the sick one, which is called disinfection; and, second, the prevention of any poison that has escaped disinfection from coming in contact with susceptible persons; therefore isolation. There is one other way in which certain diseases may be limited; that is, by rendering persons immune by inoculation, as in small-pox and diphtheria.

Theoretically, isolation and disinfection are possible, practically they are not because of the lack of co-operation of all and the indifference of many.

There should be a uniformity of health laws in adjoining towns. There should be a daily medical inspection of the schools. There should be good hospitals for contagious diseases, and cities should be compelled to care for these cases. Boards of

health should have sufficient money to care for the sick with contagious diseases. The expense at first would be great, but in the end there would be less cost to the community than there is with the present waste by improper management of these contagious cases. Isolated cases will occur until bacteriologists have found out the microorganisms that cause them, and every city and town has adopted the same stringent regulations and makes sure they are carried out.

The health department should have complete control of a patient, and the responsibility should not end until the patient has recovered and everything has been disinfected. If the sick one cannot be isolated, the patient should be sent to the hospital. After the removal of the sick patient the apartments should be cleansed and disinfected. As soon as this is accomplished the bread-winners of the family could pursue their usual vocations. Undoubtedly, many lives are sacrificed by contagious diseases yearly that could be saved if all persons would conscientiously give attention to details and lend their support both morally and financially.

Helm: Treatment of Whooping-Cough. (*Berliner klinische Wochenschrift*. No. 50. 1899. *The Journal of the American Medical Association*. Vol. xxxiv., No. 3.)

There seems scarcely room for doubt that whooping-cough is an infectious disease, but, although several microorganisms have been described by different investigators as the exciting agents, there is no agreement as to any one of these being the specific cause. When this shall have been discovered we may reasonably next hope for the discovery of the antitoxin, inasmuch as the disease is a self-limited one and a single attack is usually protective against subsequent infection; so that it must be conceived that antitoxins are naturally generated in the process of recovery. In the absence, however, of a specific or antidotal therapy, we are still restricted to symptomatic or physiologic remedies. So far as one can judge, empirically or clinically, the best of these are the sedatives, the bromids and bromoform, including also antipyrin, although belladonna, quinin and inhalations are sometimes helpful. One of the most recent candidates for favor in the treatment of whooping-cough is an organic combination of fluorin, known commercially as antitussin, and a report of the results from its employment in sixteen cases is given. The preparation used consists in an ointment made of five parts of diflourdiphenyl, ten parts of vaselin, and eighty-five parts of chemically pure wool-fat. This is readily absorbed when rubbed into the skin, preferably of the neck, chest and back, after these parts have been washed with warm soapsuds and dried thoroughly, with vigorous friction.

A mass the size of a walnut is used, being evenly distributed, and vigorously rubbed in until it has all disappeared. Of the sixteen cases treated, seven were in the catarrhal and nine in the convulsive stage. In the former the course of the disease was virtually aborted, and in the latter the symptoms were greatly ameliorated. The remedy appeared to exert a pronounced antispasmodic effect, preventing the paroxysms of cough, the dyspnea, the cyanosis, and the threatened suffocation. Not only the severity of the attacks, but their frequency also, was diminished, and the duration of the disease was distinctly lessened. In the next place, the remedy proved an active expectorant. Finally, in the amounts used, it was entirely nontoxic. The preparation proved useful, further, in the treatment of catarrhal disorders of the larynx, trachea and bronchi.

Railton, T. C.: Cases of Peripheral Neuritis Following Chorea Treated with Arsenic. (*The Medical Chronicle*. Third Series. Vol. ii., No. 5.)

Occasionally we find children with whom arsenic will not agree at all, and in whom small doses of Fowler's solution quickly cause irritation of the stomach with vomiting and perhaps diarrhea. Bronzing of the skin has been reported by Cheadle, Owen and others. Symptoms presumably dependent upon implication of the peripheral nerves, such as changes in the texture of the skin, erythematous or vesicular rashes, and most important of all, atrophic paralysis, are still less common and should perhaps be considered due to some special susceptibility on the part of the child.

Three cases of peripheral neuritis following the treatment with arsenic are recorded among 312 cases of cure, treated in the same way during ten years. A girl aged twelve years had ten drops of Fowler's solution three times a day for three weeks. During that period an aggregate quantity of 630 drops was administered, equivalent to 6.3 grains of arsenious acid. A fortnight later there was observed to be some weakness of the legs, so that she could no longer stand alone, and the knee jerks were found to be absent. From that time the paralysis steadily increased until she could not leave her bed, and this was followed in a week with paralysis in the upper extremities. It was noted that neither during this time nor previous to the onset of the paralysis did she complain of numbness or tingling. A month from the time she had first discontinued the arsenic she presented a typical condition of peripheral neuritis.

The second case was a girl of eleven years in which the total amount of arsenic was about 8.4 grains. The third case, also a girl of ten years, received in three weeks a quantity of

Fowler's solution equivalent to 8.1 grains. Three weeks after discharge from the hospital she was brought back unable to walk, and showed all the symptoms given by the other patients. A similar case was reported in *The Medical Chronicle* in 1886, and then ascribed to rheumatism. The history was very similar to those of the other girls. These four cases all made a good recovery but the convalescence was somewhat prolonged. In none was paralysis of the diaphragm threatened. In all cases the chorea was cured before the neuritis developed.

It must be remembered in judging these cases that many other children during the period mentioned had equal and often greater quantities of arsenic administered to them for chorea with the greatest benefit, without any toxic symptoms from its use. The chief lesson to be learned from these cases is that there is a risk of disastrous results following the treatment of chorea with arsenic, if that remedy is given in doses which amount in the aggregate to as much as 6 grains of arsenious acid. It is urged that no aggregate dose amounting to more than 4 grains of arsenious acid should be administered to a child during an attack of chorea.

DeLoach, A. B.: Ileo-Colitis in Children. (*Memphis Medical Monthly.* Vol. xx., No. 1.)

In detailing the character of the disease, the author calls special attention to the occurrence of nephritis in many of these cases. If the mother is not so fortunate as to be able to nurse her child, a wet nurse, if available, should be secured.

When milk disagrees some other food may be employed. Beef juice is often the most satisfactory. Care should be taken that not too much food of any kind is given. Meat broths are frequently tolerated. The white of egg, barley water, and finely divided particles of raw beef are all regarded highly. Two hours should elapse between feedings. Alcoholic stimulation may be required from the first. Brandy is the best form of administering it and should be given with barley water. With tenesmus and the passage of blood and mucus there is nothing so effective as rectal irrigation. From one to three pints of normal salt solution should be used according to the age of the child. Where there is much blood in the stools injections into the rectum of subnitrate of bismuth with opium are beneficial, especially after the intestine has been irrigated.

Change of climate is in some cases necessary.

Turner, A. J.: The Treatment of Diphtheria. (*British Medical Journal.* No. 2035. 1899.)

The statistics are from the Brisbane Children's Hospital for the past ten years and are divided into preantitoxin and anti-

toxin periods, the latter being subdivided into five classes. The first two include only cases verified by bacteriological examination. The next two sections only cases verified bacteriologically, or which could be recognized clinically beyond doubt. In the last period only clinical evidence alone is taken.

By the use of antitoxin the mortality was reduced from 42.2 per cent. in 303 cases to 12.6 per cent. in 317 cases. This latter percentage is the average of the five sections, the best result being 9.4 per cent. in 106 cases, obtained by using large and early doses. In laryngeal cases the mortality was lowered from 59.2 per cent. in 147 cases to an average of 18.3 per cent. in 177 cases, the lowest here being 10.3 per cent. In the pre-antitoxin period only one case in twelve recovered without operative interference; now nearly one-half the cases recover without it. The author makes an appeal for early administration of antitoxin and in sufficient doses. He believes in using 6,000, 8,000 or even 12,000 units in some cases, the only objection to large dosage being its cost. Very little other treatment is used—nasal syringing where there is much discharge, digitalis, strychnin and alcohol for heart failure, and pilocarpin hypodermically up to one-twentieth of a grain, with hot-air baths for suppression of urine.

McQueen, A. D.: Case of Membranous Conjunctivitis Treated by Antidiphtherial Serum. (*British Medical Journal.* No. 2035. 1899.)

Infant aged eight months; palpebral conjunctivæ of eyes were covered with a whitish membrane which could be detached entire; membrane was opaque and of considerable consistency. The conjunctivæ did not bleed upon removal of membrane, but were edematous and congested. There was no sore throat and no history of diphtheria. Temperature was 101° F., diphtheria bacilli being discovered microscopically; 6 c.c. of antitoxin were injected. An immediate improvement followed, the temperature falling and the membrane becoming less opaque. A second dose of 6 c.c. and a third of 5 c.c. were given, resulting in complete cure in four days; no return of the trouble taking place.

Höfer: Treatment of Acute Tonsillar Inflammations by Parenchymatous Injections of Carbolic Acid. (*Deutsches Archiv für klin. Medicine.* B. lvii., H. 5 and 6.; *Arch. für Kinderheilkunde.* B. xxviii., H. 3 and 4.)

At v. Ziemssen's suggestion injections of carbolic acid into the substance of the tonsil, as recommended by Taube and

Heubner for the treatment of acute inflammatory conditions of these organs were tried. Thirty minims of a 3 per cent. solution were used three times daily, with excellent results. The action is two-fold, locally anesthetizing and disinfecting. The pain on deglutition disappears almost entirely, while the temperature ends either by crisis or somewhat more gradually. No effect was produced in cases where there were either tonsillar or peritonsillar abscesses. Introducing the syringe and injecting the solution were said to cause no discomfort. A few mild cases of scarlatinal angina were also treated in the same way and seemed to be considerably benefited.

Putrid Sore Mouth in Children and its Relation to "Foot and Mouth Disease" in Animals.—Under the term "Mundfäule" Pott comprises all forms of stomatitis except true cancrum oris or gangrene of the mouth. During the course of twenty years he has observed 553 cases among 30,706 children examined. He believes that injuries to the mucous membrane of the mouth play an important role in the production of the stomatitis, and he inveighs against the use of rubber nipples and rings which are so often given to children for the purpose of quieting them. The constant sucking on them is apt to produce lesions of the mucous membrane. Mundfäule is a primary local infection. The ulcerative forms begin usually at the edges of the gums and produce linear ulcers on the inside of the cheek where the cheek is in contact with the margin of the gums. The gums bleed at the slightest touch. The abscess-form develops especially on the tip of the tongue, on the upper and lower lip and both sides of the frenum and the anterior parts of the buccal mucous membrane. The angles of the mouth are apt to become fissured, and the drooling saliva macerates the skin of the chin and neck. General symptoms are usually present; fever, swelling of the glands at the angles of the jaw, and dyspeptic disorders. In 15 cases there were marked intestinal disturbances. The author finds that the unboiled milk of cattle suffering from foot and mouth disease may induce a similar affection in man, especially in children, but not all cases of sore mouth are due to such an infection.—*Philadelphia Medical Journal*. Vol. iv., No. 26, from *Münchener Med. Wochen.*)

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Original Communications.

THREE CASES OF HEAD-NODDING AND HEAD-ROTATION IN RACHITIC INFANTS.*

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The comparative rarity and interesting nature of that curious functional nervous affection of young children variously known as spasmus nutans, gyrospasm, rotary head spasm, head-nodding and head-jerking, and which is often associated with nystagmus, is regarded as a sufficient reason for presenting to your consideration 3 cases observed by me during the past ten years. It is a source of regret that these cases were not more thoroughly studied, especially the eye-symptoms, for neither at the time they were observed, nor when it was decided to present them to this Society, was I alive to the close and important relation which these symptoms bear to the symptomatology and etiology of the affection.

The infrequency of the disorder is shown by the statement of R. W. Ravdnitz¹, that in the Budapest Children's Hospital, during the years 1890 and '91, and in 1894, but 14 cases occurred among 52,213 patients, while a very thorough search of the available literature has revealed only 78 instances of the affection,† distributed among various authors, as follows: M. H. Romberg², 2; Eberth¹, 2; E. Henoch^{3,5}, 8; S. Mackenzie,⁶ 2; S. Gee⁷, 3; Gordon Norrie⁸, 3; W. B. Hadden⁹, 21; Ed. Tordeus¹⁰, 1; Buzzard¹¹, 1; A. Caillé¹², 2; Eschova-Fridmann¹³, 3; George Dickson¹⁴, 1; Wm. Hirsch¹⁵, 1; Fraenkel¹⁶, 1; R. W. Ravdnitz¹, 15; F. Peterson¹⁷, 5; A. Hand, Jr.,¹⁸, 1; C. J. Aldrich¹⁹, 2; C. F. Judson²⁰, 1; D. J. M. Miller, 3.

It is not my purpose to discuss at length the causes, clinical features, and pathology of this functional disorder. This has

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

† Since the above was written 6 more cases have been reported: 2 by I. A. Abt (*Journ. Am. Med. Asso.* 1900, xxxiv., 269), and 4 by Ausch (*Archiv. f. Kinderheilk.*, 1900, xxviii., 161.)

been so thoroughly done by Mills²¹, Hadden, Ravdnitz and Aldrich that little remains to be said. I propose merely to report 3 cases, and then to analyze, in as brief a manner as possible, the reported cases, with reference to the significance and comparative frequency of the principal symptoms and etiological factors.

Before going further it will be well to direct attention to the misleading character of the terms by which the disorder is generally known, particularly the term spasm, which by no means describes the movements, which are, as Aldrich has well pointed out, "monotonously regular, smooth and easy." The title, "head-nodding and head-rotation," suggested by this observer, being much more appropriate and descriptive.

CASE 1.—Geo. M., colored, five months, breast fed, was first seen February 3, 1898. He had been subject to colic, vomiting and obstinate constipation since birth. The belly was protuberant and flaccid, the fontanelles large and the teeth absent. The ribs were slightly beaded and the epiphyses of the wrists and ankles enlarged. He weighed at birth eight pounds, at the time of his visit ten pounds, fourteen ounces. Under the use of massage, salt-baths, cod-liver oil and artificial food he improved somewhat, but was soon lost sight of. On May 27th (nine months old), he was brought again because of peculiar movements of the head and eyes, which had begun after an attack of measles some two months before. Because of this illness (measles) he had been weaned entirely and fed upon cow's milk and Eskay's food. The evidences of rickets had markedly increased. The bowels were still obstinately constipated and the tongue coated. The two lower central incisors were just emerging. The head movements were vertical, *i.e.*, up and down, occasionally somewhat lateral, with an inclination of the head to the right. The movements were quite rhythmical and without spasmodic character. They occurred about ninety times a minute, and ceased while feeding, and, for a few seconds only, if the attention was suddenly directed to some object, or by snapping the fingers quickly. They were much less marked in the recumbent position, and ceased during sleep. The nystagmus, which had appeared about a week after the head movements, was much more rapid than the latter, and was chiefly vertical, occasionally diagonal, and was present in whatever direction the gaze was directed. The pupils were equal and reacted to light. The fundus was not examined.

The knee-jerks were normal. At a subsequent visit, one month later, it was noted that the head movements were less marked, and that the nystagmus was almost entirely vertical. Two months after this I saw the child again. It had much improved in health and the upper incisors were beginning to emerge. The head movements and nystagmus were only occasionally seen, the mother said only when excited. An examination made the following October failed to discover either head or eye movements, the mother had not noticed them for a month or more. They lasted altogether about four months.

CASE II.—D. H., white, female, twelve months old, breast-fed for three months, since on condensed milk. Was first seen at the Children's Hospital, in February, 1895. Alternating diarrhea and constipation had been present for many months. Very marked rachitic symptoms were noted: protuberant belly, wide fontanelles, no teeth, inability to maintain the erect position, enlarged epiphyses and well-defined rosary. For five months, *i.e.*, since the seventh month, the head movements had been noticed. They were lateral, or rotary, rapid, smooth and rhythmical, occurring fifty to sixty times a minute, and ceased when lying down, when asleep, and, momentarily, when the attention was suddenly fixed. On attempting to arrest the movements by firmly grasping the head, a rapid, horizontal nystagmus of the left eye became apparent, which ceased when the head was released. The pupils were equal and reacted to light. Both knee-jerks were present. The fundus was not examined. At a subsequent visit I was told by the mother that the child had a peculiar way of holding the head to the right when looking at objects. Some months later I learned from the mother that the movements had entirely ceased, and that the child was much improved in health and could sit up alone. The attack lasted about seven months.

CASE III.—Infant of eight months, seen but once (in March, 1890), female. Fed upon condensed milk from birth. No teeth. Marked evidences of rickets: enlarged epiphyses, large fontanelles, protuberant abdomen and beaded ribs. The tongue was coated and the child subject to attacks of diarrhea. Mother brought the infant because of lateral movements of the head which had existed for two months, and which were only noticed in the erect position. There was no nystagmus, nor could a history of such be obtained. Further course unknown,

The treatment of all these cases consisted in regulation of the diet, salt baths, massage, sunshine, fresh air and cod-liver oil.

As already mentioned, it is a source of regret that these cases were not examined by a trained ophthalmologist; but this does not detract from the faithful picture that they present of the curious syndrome, or affection, so graphically depicted in Hadden's classical papers. Of particular note is the association of all of them with well-marked rachitis, a connection which has been remarked by most observers. It was present in 9 of Hadden's 21 cases, and in 39 of the 78 cases above referred to, or in 50 per cent. It is probably the most potent, exciting or predisposing cause. Another recognized exciting influence also existed in my cases, namely: gastrointestinal disturbance, although its occurrence is only noted twelve times in the reported cases. The rôle played by acute illnesses in precipitating an attack, or inducing a relapse, was exhibited in my first case, which was immediately preceded by an attack of measles. In 9 other instances this exanthem preceded a first or second attack. This connection is of interest, because of the conjunctivitis accompanying the latter affection and its possible relation to the nystagmus. In 2 cases the symptoms were preceded by pertussis, in 1 by erysipelas, and in 1 a relapse was induced by pneumonia. Further study of the 78 cases elicits the following interesting facts: In 11 there was a personal history of convulsions, and in 12 a similar history in other members of the family; in 4 cases other children of the family, or the mother, had had chorea; 27 were males, and 27 females, the sex not being mentioned in 24 cases.

Falls, which Peterson and Hirsch consider the most important exciting cause, occurred in 22 cases (28.2 per cent.). As to the age of onset, in 2 the affection began respectively at the age of four (Gee) and six (Hadden) weeks, and in 1 at three years (Henoch); 5 began between the third and fifth month, 51 between the sixth and twelfth months, 16 between twelfth and eighteenth months, while 1 case occurred at nineteen and 1 at twenty months. The disorder, therefore, is most frequently encountered between the sixth and eighteenth months (67 cases), a period when the evolution of the teeth is most active, but it is very questionable whether dentition has anything more than a feeble exciting or predisposing influence.

In 2 of my cases the head movements were horizontal, *i.e.*,

from side to side, while in the other they were distinctly vertical, or nodding, occasionally interrupted by lateral movements. Horizontal, lateral or shaking movements are by far the most common; they occurred in 49 of my series. Purely nodding movements I find in only 12 cases, instances of this character being usually associated with occasional lateral movements. In 18 cases the movements were combined rotary and nodding, while in 3 no head movements were noted. A peculiar manner of holding or cocking the head to one side on looking at objects, or throwing the head directly backward, is of frequent occurrence. Hadden observed it in half of his cases, and its presence was mentioned in 26 of my series. As observed by Aldrich, the direction of the head is usually towards the side of the monocular nystagmus. This peculiarity was present in my second case. According to Ravdnitz, this phenomenon, as well as the head movements, are dependent upon the direction of the gaze (*Blickrichtung*), as they both cease when the eyes (one eye if the nystagmus is monocular), are bandaged.

Study of the reported cases shows that the nystagmus may present itself in every conceivable form. In my first case, where the movements were nodding, and, occasionally, lateral, the nystagmus was partly vertical and partly diagonal, the former preponderating. In the second case the usual correspondence of the movements of the eyes and head was present, and, as has often been observed, of the nystagmus alone, when the head is firmly held. The direction of the movements of the head and eyes usually correspond. In 46 cases of rotary head movements, the nystagmus was horizontal in 36, mixed in 5, and in 5 its character was not mentioned. Simple nodding movements are usually associated with vertical nystagmus, but not always; in 7 instances of this variety the eye movements were absolutely vertical in only 3. Other interesting points in connection with the ocular symptoms brought out by a study of 78 cases are as follows: The nystagmus was binocular in 43, monocular in 22, and absent or not mentioned in 13. In 49 cases in which the character was noted, the nystagmus was horizontal in 36, vertical in 3, lateral and rotary in 5, lateral and sometimes rotary, sometimes vertical, in 6, vertical in one eye and horizontal in the other in 2, and in 3 occurred without head movements. In 5 cases there was strabismus without nystagmus; in 2 of these it preceded the other symptoms, and in 1 was the

only ocular manifestation present. The upper eyelids took part in the nystagmus in 4 instances; the latter was vertical in 1 of these, and in 3 vertical, diagonal and horizontal. The eyes were ophthalmoscopically examined in 22 cases and found normal in 21; in the other (Hadden's) there was a slight crescent atrophy around the disc.

Critical examination of the recorded cases of the affection forces the conclusion that it presents a sharply defined clinical picture which ought not to be confounded with many other conditions with which observers in the past and present have associated it, and with which it has nothing in common. Such conditions are that peculiar form of epilepsy, known as tic salaam, the imperative and automatic movements of feeble-minded children, habit spasm, head-banging and other choreic affections, juvenile or congenital nystagmus and some forms of petit mal. The favorable and brief course, usually from a few weeks to a few months, the invariable recovery, the absence, in the vast majority of cases, of anything approaching epileptic paroxysms (I exclude the losses of consciousness noted in a few instances by Hadden as incidental occurrences, and not as essential parts of the affection), the lack of signs of mental deterioration (many of Hadden's patients seemed to be particularly bright), and the invariably normal condition of the optic discs, serve to separate these cases from more serious organic affections.

As to the pathology of the disorder, I have nothing new to suggest. Two of Ravdnitz's cases came to autopsy. In neither was any change found, macro- or microscopically, in brain, medulla, optic nerves or muscles. Hadden believes that the movements are due to an "instability of the motor centres above the nuclei, in the spinal cord and fourth ventricle, presumably the cerebral cortex." The young child's purposive movements are not yet firmly fixed, and are easily disturbed or disarranged by some functional disturbance. Aldrich would refer the condition to cortical exhaustion, or to disease or defects in the medullation of the conducting fibres, brought about by rachitis or other nutritional disturbances, the unstable nervous system of the infant taking on such erethistic sensibility that any slight excitation may set up an irritative discharge of nerve force that finds expression in the movements of the head and eyes.

In 1889 Caillé reported to this Society two cases of nystag-

mus with head movements in rachitic babes, in whom the movements ceased on bandaging the eyes. He suggested as an explanation that the muscular spasms were either compensatory or reflex from the irritation caused by light to those structures concerned in carrying the impression. It is curious that no other observer should have been impressed by the importance of this observation. Hadden, it is true, refers to it as probably correct, but says he tried it in only one case, and Aldrich quotes Mills as making the same remark, but finds little authority for the statement. Ravdnitz, by means of a series of painstaking tests, carried on through a long period on the same patients, claims to have proved that it is the direction of the gaze, or line of sight (*Blickrichtung*) that causes and governs the movements, so that they cease when the eyes (one eye if the nystagmus is monocular) are bandaged, and this even occurs when the nystagmus is not present. This latter phenomenon he believes exists in all cases—without exception, at the height of the disease. That it has so often escaped detection is due to the fact that the cases were not observed during their whole course (often only once), or was not present at the time of examination, or was not elicited by well-directed tests. All observers have noted that this symptom may be present at one time and absent at another, or only discovered by placing the eyes in certain positions.

The eye and head movements, therefore, according to Ravdnitz, depend upon the line of sight—a reflex spasm brought about by the attempt at fixation, mostly developed in weakly children living in dark and gloomy apartments. Almost all of his patients lived in dwellings of this character and occurred in the winter months. The crib or cot in which the child lay was so placed in most cases that the window or a bright light or reflection was constantly looked at in an unnatural manner. The condition, in short, he makes analogous to miners' nystagmus. From this point of view rickets, intestinal disorders and acute illnesses would only act in a predisposing or exciting manner by producing local (eye) and general muscular weakness. This explanation will certainly not apply to all cases. I visited the houses of two of my patients several times and did not notice that the rooms were particularly dark—indeed, one of them was very light and had been occupied many months before the onset of the movements. It is evident that the nature of the

affection is still very obscure, and cannot be explained by any one theory; but its functional nature is conceded by all and it is probably due to an exhaustion or irritation, induced by rickets and other causes, of the ganglion cells innervating the muscles of the eye and head. In the treatment, the administration of bromids, so generally recommended, is not so necessary as attention to diet, hygiene, etc., and the administration of drugs directed to the improvement of the general health and the relief of any constitutional vice or temporary ailment from which the infant may be suffering.

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DISCUSSION.

THE PRESIDENT.—In my own clinic, one of my assistants, during the past year, collected a number of cases of rotary spasm associated with nystagmus. He established the fact that, as a rule, nystagmus is more marked in one eye than in the other. We have also found if you fix the vision of the

child you may bring out very slight nystagmus that otherwise might not be observed. Another assistant made the observation in my clinic that many of these children live in very good apartments and are taken out almost daily. The theory that there is eye strain in these cases is not carried out by investigation. We have now a very bright baby with rotary spasm, apparently perfectly well, with no gastrointestinal disturbance. The only abnormal condition present is rachitis. There is very marked craniotabes. This subject of rotary spasm and nystagmus opens a very wide field for the neurologist.

DR. MILLER.—Mr. President, I will only say that the few cases I have observed have not been conclusive. Two of my cases did not certainly live in dark rooms, and I only refer to this as suggestive and not by any means as a solution of the etiological problem. But all my cases presented marked evidence of rickets. Rickets is found so often that it probably is present in slight degree in almost, if not in, all cases, and may not be recognized because it is so slight. I believe the symptoms are due not only to eye strain, as they probably are in some cases, but also to exhaustion by rickets, or other conditions, of the nerve centres that preside over the eye and head movements.

A Contribution to the Treatment of Infantile Spastic Paralysis.—Dr. A. Codivilla (*Rivista critica di clinica medica*, April 21, 1900), believes that the symptomatic treatment of this condition now belongs exclusively to the domain of orthopedics. He has treated twelve cases of spastic paralysis during the past ten months and has obtained satisfactory results. He calls attention to a mode of treatment which has been recently recommended in this affection, and which until now has been used in but a few cases of spastic contractures of the feet and hands—namely, the transplantation of tendons by plastic methods. The method in question was first used by the writer in forty cases of flaccid paralyses, especially infantile spinal paralyses, which he published in a former article. In the majority of cases of infantile spinal paralyses the distortion and the deformity are caused by a disturbance of the equilibrium of the muscles which move the affected joint. By the transplantation of tendons and muscles we may reestablish this equilibrium and secure a normal position for the affected limb. Eulenburg, Sonnenburg, Hoffa, Vulpius, and Wallerstein have applied this principle to spastic paralyses with good results. The writer reports two cases in which he succeeded in restoring the function as well as in reducing the deformity of the limbs.—*The New York Medical Journal*. Vol. lxxi., No. 20.

NASO-PHARYNGEAL DISEASE IN PEDIATRIC PRACTICE: A CLINICAL STUDY.*

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Naso-pharyngeal disease in pediatric practice may be viewed from one of two standpoints—the specialist's or the general practitioner's. The former is apt to see the cases late, when serious secondary troubles may have developed; the family physician, on the other hand, is more likely to be consulted at an early date. It is, therefore, important that the possible evil influences, direct or indirect, exerted by naso-pharyngeal troubles generally, and adenoids in particular, should be kept in mind—otherwise the treatment will be symptomatic and palliative, rather than radical and curative.

The symptoms vary with the individual. In one the brain receives the brunt of the attack, in another the chest, in others circulatory or digestive disturbances are manifested, and so on. In some the relationship is evident, in others a careful study only will clear up the case. Much may be accomplished in the way of prophylaxis by a correct and early diagnosis.

The following, taken from Jacobi's masterly, instructive and scholarly article, "Some Preventives," is suggestive and will serve as our text: "Nasal catarrh, with its hyperemia and soreness of the mucous membranes, predisposes and causes chronic hypertrophy, adenoid growths, tumefaction of submental and submaxillary lymph bodies, invasion of diphtheria and tuberculosis, and occasionally meningitis.†

It is not to be inferred from the above that adenoids are the result of repeated attacks of nasal catarrh in all cases. In numerous instances, particularly when occurring in families free from syphilis or tuberculosis, the lymphoid hypertrophies must be regarded as the local manifestation of a constitutional dyscrasia, to which the term lymphatism has been applied.

In quite a number the trouble is congenital or shows itself within the first few months after birth. As lymphoid hypertrophies in the upper and middle pharynx are frequent in chil-

* Written for the "Jacobi Festschrift," and read by title before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

† *Philadelphia Medical Journal*, Dec. 10, 17, 24, 1898.

dren, it seems but logical to conclude that the enlargement of the pharyngeal tonsil in many cases is primary, and the catarrhal condition of the naso-pharynx, particularly when attended by a semi-purulent discharge, secondary—an effect and not the original cause. Our work will be facilitated and the ground cleared for subsequent discussion in detail, if at this point we refer to the functions of the nose and indicate thereby the anatomical relations of the naso-pharynx.

The main functions of the nose are:

- (a) Respiratory,
- (b) Olfactory,
- (c) To give resonance to the voice,
- (d) And to act as a regulator of the aëration of the middle-ear,

and, we may add, of the accessory air chambers or sinuses in the frontal, maxillary, ethmoidal and sphenoidal bones.

Two conditions, patency of the nose and throat, and a healthy mucous membrane, are essential to the proper performance to the work. Disease, with a greater or less degree of stenosis, shows its evil effects in many ways, to be discussed later on.

The naso-pharynx serves as a common area of air communication between five openings. The Eustachian tubes, one on either side, posterior to the nasal choanæ, ventilate the middle-ear. The acuteness of hearing depends upon the patency of the openings with free nasal respiration. The posterior nares also open into this space. They act as the normal channels for the passage of air through the nares to the lungs. Unobstructed nasal breathing is essential to the proper ventilation of the accessory sinuses of the frontal, superior maxillary, ethmoidal, and sphenoidal bones. Finally, at the lower portion, communication is established with the oro-pharynx.

As a pathological entity encroaching upon or invading this space, we frequently meet with a hypertrophied condition of the lymphoid structures (Waldeyer's Tonsillar Ring). The symptoms are local and general. Some are caused by pressure, others are inflammatory in character, and many are the result of anatomical changes more or less permanent.

A discussion of the topic may appear trite to the specialist. It cannot be told too often to the general practitioner. Specialists, as a rule, do not see the cases early; the general practi-

tioner, on the contrary, is frequently consulted at a time when a recognition of the trouble enables him to ward off many outward evil effects by proper local treatment, operative or otherwise.

Though naso-pharyngeal troubles are very common, in general practice, unfortunately, they are frequently overlooked, treated lightly, or dismissed with a few general directions. This is a serious error. Parents must not be led to believe that the child will outgrow the disorder, or that the symptoms will disappear about the time of puberty.

Advice of this sort, with neglect of appropriate measures, is certain to be detrimental to the mental and physical welfare of the patient. The popular belief, that operations upon the tonsils, etc., may be followed by defects in speech or imperfect development of the genitals, must be combated. Parents often refuse operative interference, until assured that no evil results will follow in this respect.

The family physician does well to remember that his duties are not confined to the treatment of an individual case or disease. Children under his care ought to be regarded as his wards from a medical standpoint. With a history of recurring attacks of nasal catarrh or mouth breathing, the dangers should be made clear to the parents. Unnecessary delay or procrastination must be avoided.

The attendant should bear in mind that the effects are not altogether local. Disturbances, cerebral and nervous, due to the obstructed blood and lymph circulation at the vault of the pharynx and base of the brain, are frequent. Deformities of the chest, bronchial and pulmonary inflammations, are common, as are recurring attacks of catarrhal croup.

The general circulation is interfered with, respiration, digestion, etc., disturbed, and dyspnea may be present. The poorly developed muscles, with lowered vitality in general, lead to chronic invalidism or render such patients an easy prey to acute disease.

In addition, enlarged lymph nodes at the angle of the jaw, repeated attacks of nose-bleed, acute and chronic bronchitis with emphysema and asthma, bronchopneumonia, large bronchial and mediastinal lymph nodes, are frequently secondary to a morbid state in the naso-pharynx. The paroxysmal nocturnal cough, quite common in children, distressing and alarming

in character, disappears when the nose and throat are treated. The special senses, taste and smell, are more or less impaired in older children. The voice is altered and assumes a nasal character. Inability to pronounce the letters *m* and *n* and in some cases stuttering exist.

Diseases of the eye may be reflex or arise from a direct extension of the process in the nose. Most commonly there is direct extension. Deformities in the nasal passages, acute or chronic catarrh, and adenoids give rise to affections of the lachrymal sac and conjunctiva.

Pupillary changes, photophobia, disturbed accommodation, strabismus, blepharospasm, etc., are at times of reflex origin. A normal mucous membrane is the best safeguard against the onset of a number of infectious micro-organisms. The invasion of diphtheria, tuberculosis, and now and then meningitis, is favored by an abnormal condition of the nasal and pharyngeal mucous membrane. The best preventive, therefore, is to keep the mucous membrane in a healthy state. The eloquent appeals in favor of a routine naso-pharyngeal toilet have aided somewhat in popularizing the method. In the tenement districts, where most necessary, the precautions are imperfectly employed or wholly neglected. In this connection, it may be stated that, when a child with adenoids and associated nasal catarrh contracts diphtheria, an extensive surface is apt to be involved. The type will be severe, the progress correspondingly grave. On the other hand, children who "take cold" easily, who present but few evidences of lymphoid hypertrophy up to this time, often develop decided symptoms of obstructed nasal breathing after an attack of diphtheria, scarlet fever, or measles—at times, in spite of carefully conducted nasal toilet during the course of disease.

Small painless lymph nodes at the angle of the jaw, about the size of an almond, are common. Though frequently mistaken for tonsils, this is an error. They are due to infection from the naso-pharynx, and point to the presence of adenoids or a moderate degree of nasal catarrh. If an exacerbation of the latter takes place or an infectious disease is superadded, the nodes begin to swell and become more or less painful. Under appropriate treatment with nasal injections and cold applications externally, the process subsides and resolution takes place. In other instances suppuration occurs, either nod-

ular, perinodular, or both. Now and then the capsule becomes thickened and the process remains quiescent; sometimes caseation takes place or calcareous or fibroid degeneration occurs. Other chains of lymph nodes may be involved, the process extending downward to the bronchial lymph nodes. The chief danger, however, lies in the tendency to become tubercular. In the latter case, the process may remain local, infect other lymph nodes and tissues in the vicinity, or general tuberculosis may result eventually.

Surgeons, recognizing the danger, advocate and practice the removal of enlarged or tubercular cervical lymph nodes. Yet adenoids and large tonsils have been allowed to remain, to serve as a nidus for subsequent infection. They, as well as the external lymph nodes, ought to receive surgical treatment.

A large proportion of ear troubles, from 60 to 75 per cent. according to different authorities, are secondary to diseases of the nose and throat.

Adenoids, in particular, constitute an all-important etiologic factor. In nearly every case, ear disease is certain to follow and no time should be lost in advocating their removal as a prophylactic measure. Clifford Allbutt says the very worst degrees of depressed ear-drums are found in those affected with large growths. Deafness, deafmutism, and ear disorders in general are benefited at times by local treatment of the throat. In the course of the exanthemata and other infectious diseases, suppurative otitis with perforation is very apt to develop whenever a prior inflammatory irritation or congestion of the nasopharynx is present. The danger is increased if the pharyngeal or faucial tonsils are hypertrophied. Otitic troubles arise in several ways.

The Eustachian tube may be occluded with mucus, the pressure of adenoids against the orifice may cause its obstruction, and thus interfere with the proper ventilation of the middle ear, or the catarrhal inflammation may extend through the tube and involve the delicate structure of the ear.

Trousseau, years ago, and others since then, have called attention to recurring attacks of erysipelas of the face in chronic aural or nasal catarrh with erosions of the skin. New outbreaks are avoided when, as a prophylactic measure, the primary condition of the ear, nose, or throat is relieved. A few cases of this kind have come under our observation at the

Vanderbilt Clinic. The same is true of dermatitis and eczema under analogous conditions.

A word as to general diseases accompanied by local throat or nasal symptoms. In tuberculosis, syphilis, and rheumatism,* and in the acute infectious diseases, the general characteristics are such that the nature of the local condition does not remain in doubt for any length of time. Now and then some difficulty may be met with in diagnosis.

Anatomists have clearly demonstrated the direct lymphatic communication between the vessels in the naso-pharyngeal mucous membrane and those at the base of the brain. Bacteriologists have reported the presence of micro-organisms in the nose and throat similar to those found in many cases of meningitis. Clinical observations show that the different varieties of meningitis are most commonly observed between the ages of three and five years, at a time when naso-pharyngeal troubles are very common. The intimate lymphatic connection referred to, and the identity of the micro-organisms in the naso-pharynx and those found in a large number of cases of meningitis, tend to explain the etiology of many heretofore obscure inflammations of the brain and meninges.

A general infection by way of the blood must be distinguished from a local infection arising from some region in the neighborhood of the skull. A frequent mode (beside the one referred to above) is through the Eustachian tube to the middle ear and thence to the cranial cavity. As a result, thrombosis, sinus-pyemia, inflammation of the meninges and brain, with or without abscess, are not infrequent.

Growth in general is more or less interfered with in many instances. Ewing, in an excellent article directing attention to the work done abroad, presented additional facts showing the diminished power of resistance, with the liability of sudden paralysis of the heart, in many of these patients.

Furthermore, a number of cases of sudden death during anesthesia for the removal of adenoids have been collected by Hinkel.

Deformities of the thorax, due to adenoids, are met with, though it should not be forgotten that other factors are usually associated. The worst cases occur in rachitic subjects, particu-

* Since the above was written, Dr. Packard, in the "Wesley M. Carpenter Lecture," discusses in an able manner "Infection through the Tonsils," especially in connection with acute articular rheumatism.

larly when bronchitis and pulmonary inflammation have been of frequent occurrence. The deformities vary in degree from the flat chest of the milder to the "barrel-shaped" and "pigeon breast" of the advanced type.

In seeking an explanation, it may be interesting to refer to the effects of nasal obstruction upon respiration, and to note the difference in the physical character of the air when it reaches the lungs in a normal manner through the nares, or abnormally by the way of the oro-pharynx. Inspired through the nose, the air is warmed, filtered, and moistened; in addition, further modifications occur from an interchange of gases between the blood and the atmospheric air.

When breathing is carried on through the mouth, these changes do not occur, and the air not being filtered, warmed, or moistened, acts as an irritant. Consequently the delicate structures of the larynx, bronchi, etc. (rendered more susceptible because of the chronic catarrhal inflammation of the nose and throat), readily become inflamed. As the distal portion of the lungs do not expand fully under such conditions, the external atmospheric pressure being greater, the chest wall sinks in and deformities result. The degree varies according to age, the condition of the bony structure of the chest wall, the development of the muscular tissues, the presence of bronchitis and the amount of existing pulmonary collapse or deficient expansion. We are all perfectly familiar with the difficulty and discomfort experienced in breathing when afflicted with a cold in the head. The respiration becomes labored, and the lungs expand imperfectly for the time being.

In the case of the infant or child, the condition is more or less permanent, depending upon the degree of stenosis and the presence of acute or chronic catarrh. The breathing is superficial and the effects are more severe and lasting. Let any one attempt the simple experiment of breathing through the mouth for a short time, he will quickly realize the discomfort and fatigue, the dyspnea, sense of imperfect expansion, and the feeling of weight upon the chest.

In mild cases, in the young, the lungs expanding imperfectly, allow the thoracic walls to fall in, causing a shortening of the antero-posterior diameter. The chest becomes thin and flattened, the intercostal spaces are depressed, and the infra- and supra-clavicular regions retracted. The Funnel Breast (Trichter-

brust), characterized by a funnel-shaped depression at the lower portion of the sternum, certainly, in some cases, is secondary to the nasal obstruction. It has been my good fortune to see a few in the process of development.

My experience accords with Osler, who says: "During inspiration, the lower sternum was forcibly retracted, so much so that at the height the depression corresponded to a well-marked Trichter-brust. While in repose the lower sternal region was distinctly excavated." A similar state of affairs was observed in an infant with a syphilitic affection of the nasal mucous membrane. The deformity disappeared as the nasal symptoms improved under anti-syphilitic treatment.

In marked cases associated with rickets, the chicken or pigeon breast is observed. The sternum is prominent, particularly at the junction of the first and second portion, the ribs project anteriorly, while laterally, above the diaphragmatic or rachitic groove, the chest is depressed, giving a triangular shape to the thorax. In advanced cases, the chest is almost fiddle-shaped. In a well marked instance in a child eighteen months old presented at one of our classes during the "Practical Course," it was surprising how quickly the deformity was remedied, when the patency of the naso-pharynx was restored. The "Barrel Chest" is not infrequent, and occurs in those who are afflicted with chronic bronchitis, emphysema, and asthma. The neck is short, and round shoulders with or without scoliosis may be present.

In the absence of other causes, Coolidge believes that some of the atypical orthopedic deformities may result from a lowering of the general nervous vitality, frequently seen in patients with adenoids. Bilhaut found voluminous adenoids in many cases of scoliosis, removal of which at an early date brought about cure. Whatever the relation may be, it is important to secure pulmonary expansion in such cases, as the cure or improvement of the scoliosis is facilitated by furthering the development of the muscles and establishing good nasal respiration.

A practical point in hastening the cure of empyema may be incidentally referred to in this connection.

In a few cases of empyema in mouth breathers, curetting of the naso-pharynx, by favoring pulmonary expansion through improvement in the breathing, caused the obliteration of a small cavity or sinus, thereby avoiding a secondary operation upon

the costal walls. In the same way, the associated lateral curvature rapidly disappeared when nasal respiration was established.

Snuffling in infants with retracted root of nose is of such evident import that even the tyro in medicine gives a correct interpretation. The nasal deformity should not be confounded with a similar state in cretinism and some forms of idiocy. The change in the appearance of the face, due to long-existing mouth-breathing, is characteristic, and admits of a ready explanation. The dropping of the lower jaw, due to a functional loss of tone in the muscles, adds to the length of the face, the latter appearing longer because of the deficient development of the superior maxilla.

The proper ventilation of the accessory sinuses or air chambers is interfered with by the naso-pharyngeal obstruction. As a result, the blood supply is modified, normal growth of the bones does not occur, and expansion is retarded. The anemia and mal-nutrition, in consequence of the accompanying digestive and circulatory disturbances, leave their impress upon the face and give the drawn appearance to the eyes and mouth. The facial muscles are poorly developed, and the pinched nose or distended alæ add to the deformity. These changes, taken in connection with the mental state, give rise to the characteristic physiognomy.

A high-arch palate, with narrowing of the transverse measurements of the jaw, presenting a pointed appearance in front, with resulting contraction of the alveolar process, crowding and even rotation of the teeth on their axis, is frequent. The absence of the support of the tongue and increased atmospheric pressure upon the roof of the mouth, in consequence of the buccal breathing, explain the deformity. The gothic-shaped palate in turn crowds the septum, causing a deflection, and thus adding another factor to aggravate the inconvenience of the original trouble.

The teeth show a tendency to early decay, particularly the molars. In some cases, stomatitis and gingivitis occur, persisting until the growths are removed. The breath is more or less offensive, the odor being caused partly by the bad teeth and partly by decomposed secretions, etc. Imperfect mastication, the rapid bolting of food, and the general anemia keep up and intensify the dyspeptic symptoms.

In younger children, particularly under a year, after exhaust-

ing disease with pronounced muscular weakness and relaxation, there is an additional danger, due to the tendency to falling back of the tongue and possible asphyxiation in consequence—particularly if the patient is allowed to sleep upon the back. Such cases must be carefully watched, and must be kept lying on the side. Strychnin and good diet soon restore the muscular tone.

Older persons frequently complain of shortness of breath. Talking, going up stairs, or rapid walking produces dyspnea and palpitation. A careful examination shows that the symptoms are due to the nasal trouble, and not to heart disease.

Naso-pharyngeal obstructions induce abnormal breathing, anemia, disturbed sleep and a variety of nervous manifestations. The disposition is altered, the children become fretful or sullen, the memory is defective, and, apart from the impairment of hearing, such patients are inattentive, backward and dull.* In cases in which the growths have existed for a long time, the process may cause anatomical changes in the meninges and brain, with resulting idiocy.

Headaches, often of a low grade, limited to the forehead and temple, may be accounted for by the retention of morbid products and obstructed circulation. Attacks of night terrors, walking in sleep, morbid dreams, melancholia and other evidences of disturbed cerebral functions may occur.

The mental and nervous phenomena are of extreme interest and importance. The question has been studied by Wells in an able and exhaustive article (*American Journal of Medical Science*, December, 1898), from which the following is quoted:

“Since we are dealing especially with psychopathic phenomena, how, we may inquire, can an obstructive lesion of the nose interfere with the cerebral functions? Briefly, by (a) alteration and impoverishment of the general, and secondarily of the cerebral, circulation, from the over-charging of the blood with CO₂ and the diminished supply of O, which are the necessary results of deficient aëration; (b) interference with the blood-supply of the brain by the lesion in the nose; (c) hindrance to the outflow of lymph from the brain. It has been shown that the subdural and subarachnoid lymph spaces are in direct connection with the lymph vessels of nasal mucous membrane. Guye held that aprosexia was owing to the interference with the lymph circulation, by reason of which the products of cere-

*Ribot holds that *acts of attention* are “accompanied” by a temporary suspension of the respiratory rhythm. The air hunger, depending upon the presence of adenoids, therefore of necessity interferes with the psycho-physiology of the act of attention. In this way he would explain the mental state of such children.

bral tissue metabolism are accumulated in the brain, producing brain fatigue or the so-called 'retention-exhaustion.' (d) It is barely possible that there may be some direct oxidation by the central nervous system, by means of the olfactory bulb (as in some animals) which function, if it exists in man, would be prevented by obstructive lesions of the nose."

Exceptionally a pure reflex case may present itself. In the vast majority, other causes exist, the removal of which yield brilliant results. In view of the marked improvement and entire disappearance of local facial spasms at times, following the relief of the naso-pharyngeal disease, some relation of cause and effect must be admitted. The deleterious effects of the nasal disorder upon the blood and lymph circulation in the brain, and the accompanying anatomical changes, are responsible, in a measure, for the various neuro- and psycho-pathic manifestations occurring in *neurotic* subjects.

Jacobi, in an article published in 1886, directed attention to "partial, and sometimes general, chorea minor from naso-pharyngeal reflex." During the past ten years, the writer has seen quite a number of cases (at the Vanderbilt Clinic) improve under local treatment directed to the naso-pharynx, arsenic being given at the same time, though arsenic and tonics alone failed to make much impression.

Nasal obstructions (inflammatory or otherwise) no doubt act as factors in the production of asthma, in a number of cases—not, however, as the sole agent. A neurosis which remains active after the nasal trouble is relieved is generally found.

In the discussion of this part of our subject, three conditions must be considered: First, predisposition, varying in degree in different individuals; second, some abnormality or undue excitability of the mucous membrane in some portion of the air passages; and, finally, a distinct irritant, which in consequence of individual idiosyncrasy, is reflected to, and again from, the respiratory centre. The greater the predisposition, the less the exciting cause needs to be. The truth of this was frequently exemplified in our experience at the Clinic. In numerous cases, the tendency to bronchitis was relieved by freeing the naso-pharynx. Yet the attacks of asthma would occur, sometimes less frequently; in other instances, no benefit resulted; now and then a cure was noted, probably in cases in which the predisposition was slight.

For a moment, attention will be directed to a brief study of the cases in which enuresis is observed. In some the incontinence is nocturnal, in a larger number it is both nocturnal and diurnal. A neurotic condition, with anemia and flabby muscles generally, is frequently found to be associated with the urinary difficulty. Increased thirst and polyuria add to the distress. As to an explanation, a plausible solution is offered in the mental state incidental to mouth-breathing. Apathy and listlessness, with disturbed intelligence and deficient innervation in general, are present—*conditions*, manifestly the result of the obstructed circulation in the blood and lymphatic vessels at the base of the brain and vault of the pharynx.

The higher inhibitory centres, for reasons given, do not act in a normal manner; the bladder reflex, consequently, is not respected, and incontinence follows. Furthermore, the frequent indulgence in water, to relieve the thirst caused by the parched condition of the lips and tongue, produces increased flow of urine, another factor in the etiology. Drugs are of very little service under such circumstances; to cure these patients, the pathological state in the naso-pharynx must be removed.

An attempt has been made to present the more important features. Much might be added. The instructions in the following, taken from the paper of Jacobi, are to the point. If carefully followed, many evils may be avoided and a great deal accomplished in the way of prophylaxis.

Jacobi writes:

“I have always made it a rule to keep all the integuments clean. At least once a day a physiologic solution of salt water is poured through the nares of every infant or child over whom I have control. Big adenoids should be removed, large tonsils resected. There is more danger in a dirty nose than in an unwashed face. Only do not be satisfied with merely ordering it. I have met many a ‘trained’ nurse who did not know how to inject or to irrigate a nose. A mother or a child’s nurse should be instructed by you personally how to do it. Here, as everywhere, when two do the same thing, it is by no means the same. There are many cases of nasal diphtheria, such as are most likely to resist the influence of antitoxin, which are still spared a fatal termination by persistent and correct irrigation of the nares and naso-pharynx.

“Pure air and sunlight are indispensable to health. The air should enter the lungs by way of the nasal passages; ‘And breathed into his nostrils the breath of life,’ we find recorded in Genesis.

"There is more than a grain of truth in the aphorism, 'Shut your mouth and save your life,' found on the title-page of Captain Catlin's celebrated pamphlet on mouth-breathing."

The homely, forcibly expressed dictum of Catlin must not be lost sight of. Give the little patients free nasal respiration, and give it to them early—the earlier the better.

Preventive medicine has done much to alleviate human suffering. Efforts in this direction have already borne fruit, and as a knowledge of etiology increases, advance in prophylaxis will keep pace.

These assertions are particularly applicable to our subject. To sum up, we may add:

1. The removal of the lymphoid hypertrophies in the naso- and oro-pharynx, with the cure of the associated naso-pharyngeal catarrh, will restore the patency and permeability of the nose. If done early, many local pathological changes may be avoided.

2. The general health will be more or less improved.

3. The mental faculties and general intelligence will be improved.

4. Defects in speech and in hearing due to nasal troubles will disappear.

5. Deafmutism may be relieved.

6. The functions of taste and smell will be restored.

7. Reflex neurosis of various kinds will be modified or cured.

8. Nasal and supposed pulmonary hemorrhages will disappear.

9. Thoracic deformities will be relieved or cured.

10. The tendency to acute rhinitis, pharyngitis, laryngitis, bronchitis and pneumonia becomes less and less with the restoration of normal respiration.

11. The dangers attending the presence of enlarged cervical lymph nodes will be avoided.

12. The invasion of various infectious diseases is less likely when the nasal mucous membrane is in a healthy state.

13. The danger of meningeal infection from the naso-pharynx will be lessened.

14. Ear complications in general, and particularly those incidental to the infectious diseases, will be avoided or rendered less dangerous.

PERFORATION OF A TUBERCULOUS BRONCHIAL LYMPH NODE INTO THE TRACHEA. SUDDEN DEATH. *

BY A. CAILLÉ, M.D.,
New York.

This specimen was taken from the body of a girl, four years old, who died suddenly in the Babies' Ward of the Post-Graduate Hospital. She was admitted by the house physician with the diagnosis, "bronchitis." There was no elevation of temperature, no pain, no dyspnea, and the heart and kidneys were free. A few râles could be heard on auscultation over the sternum. On the morning following her admission, she was playing with other children in the ward when she suddenly began to complain of pain in the neck, and almost immediately became cyanotic and asphyctic.

As a large calibre O'Dwyer tube did not relieve her dyspnea a low tracheotomy was performed also, without giving relief. The obstruction was evidently in the lungs and she died in a few minutes.

At the autopsy both bronchi were found plugged with a cheesy material which came from an abscess cavity situated above the bifurcation of the trachea, and which had perforated and ruptured into the trachea. As long as the child was under our observation there were no symptoms pointing to such a condition and the cheesy gland was in an unfavorable position for surgical interference.

At the February, 1900, meeting of the New York Pathological Society two similar cases were reported.

DISCUSSION.

DR. ROTCH.—I should like to ask Dr. Caillé what was believed to be the matter with the child before this was discovered.

DR. CAILLÉ.—The child was sent in by the family doctor with a diagnosis of bronchitis, and the house physician reported finding a few râles under the sternum. The child had no fever, hardly any cough, and was so playful and apparently in such good spirits that it was not put to bed at all.

DR. ROTCH.—It was supposed to be a tuberculous lymph node?

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

DR. CAILLÉ.—Yes; it was a tuberculous lymph node.

DR. ROTCH.—It is one of the most interesting cases. It happens I have been looking into the literature and asking the physicians their experience with tubercular bronchial nodes. They are a very important class of cases, and the question is, how are we going to detect them? I have been absolutely unable to find any symptomatology. Yesterday when Dr. Caillé read his paper on the tuberculous disease of the peritoneum we were forced to acknowledge how many children are tubercular whom we did not know were tubercular. It is a very serious matter, in a child with bronchitis, to have it suddenly die when it appears it should get well. But I am absolutely unable to find any symptomatology by which we can be aided in these cases. The bronchial nodes I suppose are the most frequent nidus of infection, and still those cases are more difficult to diagnosticate than the mesenteric, and, of course, more difficult than the cervical nodes. They often become encapsulated and we hear nothing further of them. But they should make us most guarded in our prognosis, whenever a child with enlarged lymph nodes has a cough. The specimen is a most beautiful one.

DR. CAILLÉ.—If there are any symptoms that will direct our attention to the condition it must be pain and dyspnea.

DR. ROTCH.—I would also suggest pain and edema and a certain amount of cyanosis of the face in addition to the dyspnea, but these symptoms often are not present.

DR. CAILLÉ.—That was the only tuberculous focus we could find in the child.

DR. FREEMAN.—I would like to mention the production of some cases of post-pharyngeal abscesses as an analogous condition due to suppuration of tuberculous lymph nodes. Three cases of abscesses in the respiratory tract due to the breaking down of tuberculous lymph nodes have been seen at the New York Foundling Asylum in the past few years. One of these was mentioned by Dr. Caillé; it was low down at the bifurcation of the trachea; it broke into the trachea and the child suffocated. There have been two other cases in which the tuberculous lymph node was higher up and a post-pharyngeal abscess was formed; the two children died from some other trouble and at the autopsy these cheesy nodes were found at the seat of the abscesses.

DR. ROTCH.—We should be careful in our prognosis in retro-pharyngeal abscess. The abscess should be opened, but the case should be watched closely as there may be suppuration in some of the deep seated glands and a grave condition may be present.

DR. DORNING.—Unless there is a large mass of the bronchial

lymph node, I do not believe there will be any symptoms at all. I would like to ask if any member of the Society has been assisted in diagnosis by a procedure that I have seen mentioned, and which I have tried. When listening over the sternum, with the head in its natural position, nothing abnormal may be heard, but by elevating the face so as to draw the trachea upwards, it is claimed we will obtain a murmur over the sternum when the bronchial glands are enlarged. I have resorted to this procedure in a number of cases and in only one was I able to get a murmur and unfortunately that case passed from under observation and I do not know whether enlarged lymph nodes were present or not.

DR. MILLER.—We cannot possibly get any symptoms unless the lymph nodes are large enough to compress the vessels or nerves or cause dulness. The symptom Dr. Dorning speaks of, upon which I believe great stress was laid by Eustace Smith, I have tried in a large number of cases, and it seems to me is of little value, as a murmur elicited by pushing the head back and putting the face on a level with the horizon, is present in many normal cases. If the vessels are put upon enough of a stretch a murmur will be produced. I believe with Dr. Rotch that there is absolutely no diagnostic symptom of value, unless the lymph nodes are very large.

DR. BLACKADER.—We all recognize the fact that in the diagnosis of enlarged bronchial lymph nodes, physical signs as a general rule give us very little assistance. On two or three occasions, however, I have noticed symptoms which led me to suspect an interference with the entrance of air into one of the bronchi, as evidence by a weakened inspiratory murmur, diminished expansion of the chest wall on the same side, and sometimes a recession in the lower intercostal spaces. These symptoms persisted for some weeks and were attributed by me to pressure exerted by enlarged bronchial lymph nodes as no other symptoms arose to more adequately explain them, and they gradually subsided under treatment. I am fully aware, however, how easily such symptoms may be misinterpreted.

DR. FRUITNIGHT.—I have seen a large number of *post-mortem* examinations in which tuberculous nodes were present, but nothing was determined clinically by this manœuvre of raising the head and extending the neck. So I think we have nothing positive in this method of examination.

DR. WEST.—I reported to the Society last year seven cases which I believed, and still believe, were enlarged bronchial lymph nodes. They were seen on account of cough principally, and the symptom Dr. Dorning has referred to was present in all the cases. Of course that symptom can be brought out in a good many children in whom there are no other symptoms of bronchial nodes. I have seen that in two other cases since my

paper was read and the symptom was prominent in them, and also in one of the reported cases with a recurrence of the trouble. The reappearance of this symptom in this one case was due no doubt to enlargement of the nodes. The enlargement of the veins of the upper part of the chest has been referred to, and that I found to a lesser extent in the face in some of my cases, and also some edema of the face. In four of the cases I have reported there was also a weaker respiratory murmur on one side than on the other. In a case that I saw last winter and again this winter, the child had a cough that resembled to some extent whooping-cough, and one other case seen this winter also resembled whooping-cough.

DR. DORNING.—I would like to ask whether either Dr. Blackader's or Dr. West's cases came to autopsy.

DR. WEST.—No; none of my cases.

Butter in Chronic Constipation of Children.—H. Doerfler states that (*Muenchener Medicinische Wochenschrift*) chronic constipation in otherwise healthy children is, in most cases, not a disease but an obstruction of the intestines from too much food. This condition can be simply and effectively terminated by giving the child fresh butter, a half to a teaspoonful during the first two or three months of life until normal defecation is restored, and then this dose every second day. Between the third and fourth month give two or three teaspoonfuls a day, until relieved, and then every second or third day. From five months to a year one to three tablespoonfuls every two or three days; over this age, give as needed. The butter must be given unchanged; not warmed nor mixed with any substance, as this alters its composition. In an experience of six years every child has taken the butter with relish without exception. It increases the nourishing elements of the food in small compass, and is the nearest approach to milk; a part is readily assimilated and the rest is eliminated, stimulating peristalsis as it passes through the intestines. Pale, pasty children become red-cheeked and hearty, and the benefits of this butter treatment are evident up to the fifth and sixth year.—*Journal of the American Medical Association*. Vol. xxxiv., No. 8.

INTUSSUSCEPTION IN AN INFANT FOUR MONTHS OLD, RELIEVED BY INJECTION.*

BY ALFRED HAND, JR., M.D.,

Pathologist and Dispensary Physician to the Children's Hospital,
Philadelphia.

M. W., four months old, fed at the breast and on condensed milk, was taken ill on Sunday night with symptoms of intestinal colic, drawing up of the legs, a hard abdomen and evident pain. On Monday she vomited four times and passed two brown, lumpy stools, followed by one consisting of blood. A dose of castor oil and rhubarb was given and retained. This was followed by bismuth and chalk-mixture. On Tuesday the stomach was absolutely unretentive, even water being rejected, and there were three passages of bloody mucus.

When first seen, at 2 P.M. Tuesday, the temperature was 101° F.; the pulse was strong at 150; the expression of the face was tired, with sunken eyes, but free from evidence of pain; the abdomen was flaccid, with a tumor easily palpable in the line of the descending colon; this tumor could be freely moved from the flank well forward to the umbilicus, in the direction of its longest diameter. The breadth of the tumor nearly equalled the length, and a short distance from the left end there was a constriction, the part to the left being slightly smaller than the rest. Floating spleen and kidney were excluded by the shape and consistency of the tumor, the latter being of a tense, elastic nature. Digital examination of the rectum showed it to be empty, save for blood-tinged mucus, up as far as the promontory of the sacrum. As was expected, the tumor was too high to be felt. Five drops of paregoric were at once given by mouth in a little water and were retained; the abdomen was covered by a hot flax-seed poultice, and preparations were made for giving a high enema of salt and water. This was done an hour later, with the bag of the fountain syringe elevated two feet above the bed on which the infant lay; firm compression of the buttocks with the right hand prevented the return of the water around the soft rubber catheter, while with the left hand the tumor was gently manipulated from left to right, the mother in the meantime holding the child by the feet, perpendicularly inverted. Sudden disap-

*Read before the Philadelphia Pediatric Society, May 8, 1900.

pearance of the tumor was not noticed, but after the abdomen became gradually distended with at least a pint of water, no tumor could be felt. Palpation now caused crying, while before it had evidently been painless. Paregoric was continued in doses of five drops every two hours, and the diet restricted to barley-water. Five hours later there was one movement of the bowels consisting of green mucus, fecal matter and blood; the temperature was $101\frac{2}{3}^{\circ}$ F., and the pulse 155. The stomach was retentive and the abdomen distended and tender. The poultices were continued, and bismuth salicylate with bicarbonate of soda added to the treatment. On the following day there were five greenish movements of the bowels, all containing blood; and the other symptoms remained the same, the temperature ranging from 100° to 101.5° F.

There was no change until Friday, the sixth day from the start of the sickness. Shortly after nursing at the breast on Thursday, vomiting began and lasted all day; the stools, six in number, lost the fecal element and consisted of blood and mucus; the temperature was 102° F.; and an indistinct tender mass was made out where the original tumor had been felt. Recurrence of the intussusception was suspected, and the paregoric, which had been gradually lessened, was given in an eight-drop dose and retained. It was thought undesirable to try reduction by an enema without facilities for immediate surgical intervention, which might be necessary should the enema fail; the child was removed to the Children's Hospital and a consultation held four hours later with Dr. Jopson. At this time no tumor could be felt, and a high enema was retained, so operation was rejected. The poultices were continued, and equal parts of lime and cinnamon-water were given, one teaspoonful every half hour during the night, with five drops of paregoric every four hours. The child was taken home in the morning, and the same medication continued, with the addition of one grain of bismuth subnitrate every half hour. The poultices were now preceded for ten minutes every four hours by a weak mustard plaster. For a day the feedings were only barley-water, after which breast-feedings were carefully resumed, every six hours at first and then every three hours. Two days later blood appeared in one of the stools, with a rise in the temperature to 100.4° F., but all the symptoms subsided the next day under the same treatment, and in a few days recovery was complete.

Among the features in the case worthy of comment none seem more important than the value of opium, which was shown by its preventing an increase of the intussusception in the first place, and in the second, by a possibly reducing effect at the start of recurrence. The course of the case showed clearly that with reduction a case of intussusception is by no means cured, but that the secondary—and very likely, also the causal, primary—enteritis is capable of giving rise to many anxious moments.

The case does not apparently throw any light on the important question of how long after the occurrence of intussusception attempts to effect reduction by injections are safe. It has recently been pointed out that many attacks of colic in infants are in reality intussusceptions which undergo spontaneous reduction, and if, in this case, the primary colic on Sunday was the start of invagination, then reduction was safely accomplished at least forty-eight hours after the onset. But if the appearance of blood on Monday marked the beginning of the process, then within twenty-four hours the peritoneum in the neighborhood was involved in an inflammatory reaction, evidence of which is seen in the fact that the abdomen was distended and tender after reduction, especially in the line of the entire colon, and a reduction at the end of the next twenty-four hours might have been either impossible or else productive of serious results.

If there was merely a mild enteritis on Monday, we can scarcely blame the administration of castor oil; but it is justifiable to speculate as to the harmful influence exerted by this much-used remedy. It would certainly seem to be safer in all cases needing prompt evacuation to resort to the more troublesome procedure of injection, which may in the end save time, serving not only to bring a more prompt effect, but also to accomplish in some cases reduction of a slight, undiscovered and undiscoverable intussusception, which might be aggravated by any purgative acting from above.

In a very incomplete examination of the literature I have found no case in an infant as young as four months.

1801 PINE STREET.

Gonorrheal Peritonitis in a Child.—There are many recorded cases in children where an ophthalmia due to the gonococcus has been followed by joint involvement. Braquehay (Bull. et Mem. Soc. de Chirurg. de Paris. T. xxiv.) reports a case of gonorrheal peritonitis followed by an arthritis in both ankles.—*Boston Medical and Surgical Journal.* Vol. cxlii., No. 3.

ARCHIVES OF PEDIATRICS.

AUGUST, 1900.

Edited by WALTER LESTER CARR, M.D.

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MYOCARDITIS.

Myocarditis is not an infrequent lesion, but the description of the disease in most text-books is so brief that to judge by the space given to the subject we should have to agree with Koplik's statement that myocarditis is regarded as so rare as to be scarcely worthy of serious study.

Myocarditis is a disease present in many of the infectious disorders but not always appreciated as a structural change in the heart. The toxins produced by many bacteria lessen the dynamic force of the cardiac walls, not by their influence on the ganglia, but by degeneration of the muscle.

There are two reasons for the apparent oversight of an actual pathological process in the myocardium. The first being that endo- and pericarditis are looked upon as the inflammatory results of rheumatism or allied diseases and the weakness of the heart is treated as part of the usual accompaniment of the

inflammation. The association of a toxemia in the production of the lessened force of the heart seems to be left out of consideration.

The second reason is that only within the past few years have we been given careful reports on the results of toxic influence as observed in diphtheria, pneumonia and influenza. The toxic effects of the bacteria of these and kindred diseases in weakening the heart have been expressed in the term heart failure without a clear description of the myocardial degeneration. Now, the heart weakness is known to be a parenchymatous degeneration of the heart muscle.

In fevers and in the diseases above mentioned the fibres of the cardiac muscle are swollen, the striations are lost and the nuclei and cell matter degenerate, the vessel walls are affected and leucocytosis is present; in severe types of myocarditis fibrous tissue takes the place of some of the muscle. The areas of the myocarditis may be limited to foci and not extend to all the muscle, so that part of the heart will appear quite normal.

High temperature requires the association of a toxin to cause the severe forms of myocarditis. The toxin present in diphtheria gives evidence of great intensity of action on the heart muscle while the temperature may be nearly normal, showing that there is other influence than temperature causing the loss of power.

Recognizing that toxins are destructive to the muscular structure of the heart we have a definite cause for the heart weakness and circulatory disturbances in diseases of bacteriological origin. We are not dealing with an exhausted muscle overworked during a febrile state, but with a muscle degenerated from the changes due to a toxin.

For the management of myocarditis agents are needed to lessen the virulence of bacteria and supportive measures are required to give greater resistance to the system. The nursing must be supervised, so that children are kept quiet through the dangerous period of a myocarditis occurring in association with an infectious disease.

Bibliography.

The Medical Diseases of Childhood. By Nathan Oppenheim, A.B., M.D. With 101 Original Illustrations in half-tone and 19 Charts. Pp. 653. New York: The Macmillan Co. 1900.

This book, which is well printed and handsomely bound, presents certain novel features which are worthy of notice.

The author apparently had two distinct things in mind when writing this book. The first being to make a readable book which would not be loaded with statistics and references, but should present a continuous discourse on the subject treated. The other idea being the supposed advantages of illustrations with photomicrographs of pathological lesions.

The wisdom of these two features is open to discussion, and seems to depend somewhat on the class of readers for whom the book is intended.

If, for instance, this book is intended for laymen, to be read as they would read any history or novel, there might be advantages in the absence of statistics and references. On the other hand, to both the student and practitioner of medicine the presence of both statistics and references would add materially to the value of the book.

The use of photomicrographs to illustrate pathological lesions is in some cases impracticable and often unsatisfactory, even with the best results obtainable. Laboratory workers frequently have to discard photomicrographs and resort to drawings in order to illustrate distinctly pathological lesions. There are several reasons for this, one of the most important being that a photomicrograph shows but a single layer of a tissue, while the microscope brings into view in quick succession several contiguous layers.

An author then who confines himself for illustration to photomicrographs should attempt to illustrate only those conditions which can be well shown by this method, and use only the best result of the photographer's art. This the author has not done. A number of the illustrations, such as those of hypertrophic cirrhosis of the liver (page 141), acute tonsillitis (page 237), and normal lymph node (page 245), show absolutely nothing. Moreover, this obscurity in the illustrations is not relieved by reference in the text or explanation in the caption.

The author's views are, as a rule, in accordance with the generally accepted ideas. The different diseases are, however, treated of in a very cursory and incomplete manner, and do not add anything to our knowledge of pediatrics,

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, April 12, 1900.

WALTER LESTER CARR, M.D., CHAIRMAN, *pro tem.*

INTUSSUSCEPTION: OPERATION: RECOVERY.

DR. JOHN F. ERDMANN presented the patient, who was a female child aged seven years, with the following history: Mary C. was seized with a pain in the abdomen at about five o'clock in the afternoon. The pain was followed by a small amount of blood in a stool that passed a few hours afterward. There had been no illness before that could have any bearing upon the diagnosis or causation of the condition found. Her family physician, upon being called, used all the remedies usual in such cases. Dr. Erdmann saw her at eight o'clock the following day—twenty-nine hours after the onset—at which time she presented the following signs and symptoms: Anxious countenance, restlessness, pulse rapid—116, temperature 100.4°F., respirations shallow, abdomen slightly distended, tumor palpable and visible in the left lumbar and iliac regions and a palpable tumor in the rectum. Owing to the duration of the illness and to the fact that ordinary attempts at reduction had been practiced, he decided to operate at once. The patient was chloroformed and an incision was made through the left rectus sheath, the rectus was pushed aside, and the posterior portion of the sheath was cut through. The peritoneal cavity was then rapidly opened and a tumor involving the descending colon, sigmoid and rectum was exposed. No general peritonitis was present. Reduction was rapidly accomplished but great care was necessary on account of two rents in the serosa produced by distension due to the rather firm packing of the gut in the sigmoid. One rent was about one and one-half inches in length in the long axis of the gut; the other was about one inch in the transverse diameter. These rents were sewn with fine catgut and then the gut was reduced by means of pressure at the distal end of the mass. It was found that the colon alone had to be dealt with, the intussusception beginning at the hepatic flexure of the transverse colon; at this point the intestine was

very edematous and ecchymotic. No attempts at shortening the mesocolon were made, as in all the cases previously operated upon this procedure was found to be unnecessary. The opening in the abdominal wall was closed in separate layers, great care being taken with the sheath of the rectus. The patient, in excellent condition, was placed in bed thirty-seven minutes after the anesthesia had been started. Her after history was an excellent one, all signs pointing to a prompt recovery.

This was his tenth case of intussusception (see *Annals of Surgery*, February, 1900) of which eight were operated upon, one was reduced with water, and the other refused all operative relief. Of the cases operated upon the eldest was nine years old and the youngest but fourteen weeks; of these cases 50 per cent. recovered; in the fatal cases three were so far gone—almost moribund—that it was deemed inadvisable to operate; but the small chance offered was taken in each instance.

The patient presented showed some of the disagreeable things that occur in abdominal work. On the seventh or eighth day the first dressing was removed and a marked bulging appeared on the left side in the region of the incision; although great care was exercised in sewing some of the deeper sutures tore out and a hernia of the abdominal wall resulted; the hernia was about the size of the hand. It was again dressed carefully, adhesive strips and the ordinary bandage being placed on. In one week's time this herniation reduced 50 per cent. He did not know whether it was due to a distinct separation of the muscle or not; he could not say whether it was due to paralysis.

Many surgeons stated they had never seen a case of intussusception. Dr. Erdmann thought that was a peculiar run of luck or else the condition was not readily diagnosed.

HEREDITARY LUES.

DR. F. L. WACHENHEIM presented a female baby, H., aged nine months, who was the youngest of four children, the others being in good health. The family history was good. At birth the mother noticed that the baby's abdomen was unusually large. The baby has always been subject to attacks of vomiting, while the bowels have acted normally. He saw the baby one week ago and found it greatly emaciated. The abdomen was

very large, tympanitic and the outlines of the liver and spleen were visible. Palpation showed an extremely hard spleen reaching down low in the iliac region; the liver, likewise, was excessively firm, extending three inches below the border of the ribs, the lobes being clearly distinguishable. Thoracic examination revealed nothing abnormal. The lymph nodes were nearly all enlarged. There were signs of a moderate rachitis. Examination of the blood and urine were negative in results. The temperature was 100.2° F. There was a nystagmus on attempted fixation probably due to amblyopia.

The diagnosis lay between pseudo-leukemia, anemia splenica, amyloidosis and hereditary leus. The condition of the liver argued against the two former; the child's age was against amyloidosis. He, therefore, began antisiphilitic treatment, as should be done in all similar cases on general principles.

SPORADIC CRETINISM.

DR. ROWLAND G. FREEMAN presented this case. He first saw the child on the 10th of February. The mother stated that this child did not appear as bright as her other children at the same age. Since the age of five months the child did not seem to grow. The child nursed well but was obstinately constipated. Child does not sit up. She presents the characteristics of a fairly marked case of an ordinary cretin. The face was thick and heavy; the hair thin; the skin dry and of a yellowish color; expression dull; lips thick; tongue swollen and protruding; nose occluded with mucus; abdomen distended; umbilicus prominent; weight, 11 pounds 12 ounces. (The child weighed 8½ pounds at birth and 13 pounds when five months of age.) There was a loss of 4 ounces in the last five months. She measured 23.5 inches in length. Her temperature was 95° F. Treatment was begun on February 16th with small doses of thyroid, increasing it up to 2 grains. During first four days child lost weight—about 1.5 ounces. In eight days she lost 4 ounces. In fifteen days she lost 8.5 ounces but gained .5 inch in length; she appeared brighter and no longer protruded her tongue. In twenty-six days she lost 1 pound and 1 ounce; very restless. Forty-one days after treatment was begun she developed bronchial trouble and the thyroid had to be stopped for several days. The interesting things to be noted regarding this case were (1) constipation was cured in eight days; (2) improved intelligence

occurred in fifteen days; (3) entire change in appearance, the evidences of cretinism disappeared in forty-seven days. Photographs were shown.

SPORADIC CRETINISM.

DR. HERMANN presented three children, the oldest, six years of age, the next three years, and the youngest being seven weeks of age, all belonging to the same family. He dwelt upon the history of the second child; this child had been described by Dr. Koplik in 1896. The sister was a fully developed cretin. The mother and father are first cousins; no goitre appears in either. They had ten children, of whom five are living. Of the five that died two probably were cretins. This child had a normal birth. When four days old she became icteric. At the age of one month she was brought to the speaker with jaundice. The expression of the child was striking; the abdomen was rotund; the extremities were short but not deformed; the tongue was thick and large, and she presented nearly all the signs of cretinism.

The third case mentioned was particularly interesting on account of the age, few cases coming under observation so early, patients being seldom seen before the age of six months; this case was but seven weeks of age. It is 50 centimeters in length; the trunk is large; the extremities are short; the abdomen protuberant; the muscles not well developed; the child appears somewhat yellowish—*icterus neonatorum*. The head is 35.5 centimeters in diameter, the measurement being taken around the occipital protuberance and forehead; the forehead is low; the hair is dry and scanty; the eyes are small and wide apart; the lids are somewhat thickened; the nose is broad and flat; the cheeks are soft and flabby; the tongue is large and thick; the neck is rather thickened; the thyroid cannot be felt; the rings of the trachea can be felt; the chest is well formed and measures 34 centimeters; the lungs and heart are normal; the child is stupid; the skin on the back of hand and foot is characteristic; the temperature is 99.8° F. in the rectum; previously it had been 96° F.; he thought the thyroid extract administered accounted for the increase in temperature.

SPORADIC CRETINISM.

DR. WILLIAM B. NOYES presented the patient, who was seen on September 1, 1895. She was then two years of age

but did not appear to be more advanced than a normal baby of six months. She seemed bloated, with a protuberant abdomen, puffy cheeks and face; the eyes were dull and listless; the nose short and *retroussé*; the tongue swollen and protruding from the mouth, with constant dripping of saliva from between the thick, protruding lips; the neck was short and thick. The child could not hold up its head or move its limbs and seemed to be idiotic. The fontanelles were wide open, and the bones of the skull soft. The length of the child was twenty-four inches. The arms and legs were short and somewhat swollen at the epiphyses. There was no craniotabes, rachitic rosary, bending of the bones, or other rachitic symptoms. At birth the child weighed eight and a half pounds; she steadily gained in weight until she weighed fourteen pounds at the age of two months; then for more than a year she did not gain weight. The general condition pointed to sporadic cretinism. Thyroid treatment was begun and in three days a change had taken place. The tongue and lips had gone down to the natural size, the neck became two inches less in circumference, the swollen abdomen three inches smaller, the child perspired freely. On November 24th the mother wrote: "The improvement in the past month is wonderful. A stranger would now take her for a bright, active child a year old. She has brightened in intellect for two or three weeks, her facial expression has changed entirely, and she has cut two under teeth without any trouble, but is still weak in the lower back." On January 5th: "Her eyes are bright, her cheeks red, her face intelligent, and she is beginning to talk a little. She perspires freely, which she never did before she began treatment. She now weighs nineteen and a half pounds. Since September she has grown from twenty-four to thirty-two inches." On March 2d the weight was twenty-four and three-quarter pounds. Her height was thirty-two inches. She had ten teeth. She could not sit alone. On October 27th the child had been developing cretinoid symptoms. Face and lips thick; abdomen protuberant; umbilical hernia marked; semi-intelligent; height, thirty-four inches; weight, twenty-eight and three-quarter pounds; not moving about; not perspiring; constipation obstinate. He ordered thyroid powder, grains two. On November 5th she weighed twenty-seven and a half pounds. The child was pale and restless. Thyroid extract, three and a half grains ordered. She was brighter and played on the floor. On

November 12th her appetite was good. "She sleeps well and is stronger, trying to walk. She does not talk." On November 15th the mother reports the hands and feet are stronger, and that she weighs twenty-eight and a half pounds.

The speaker realized that the treatment of this condition was a life-long one; that a cretin could be made to order at any time by stopping the treatment.

On February 2d the child's mother wrote: "Yesterday was her fifth birthday, and last night she walked way across the floor alone, which is about seventeen feet. She walks as strong as a child who has been walking for a long time." On July 4th the child was not looking well, the thyroid having been stopped for three weeks. The thyroid treatment was again started and on July 24th, the mother wrote: "She has certainly improved very much. I noticed a change very soon after beginning the thyroid. It has given her a greater start ahead this time than usual. She tries so hard to talk. Her expression is improved. Her height is three feet eight inches. Her weight is forty pounds." The most interesting things regarding this patient was the trouble she had in learning to walk and to speak. He thought there might have been some congenital deficiency in the cerebrum, possibly the cord, or possibly in some special centres. The child has learned to walk and he thought would learn to talk. He thought there was some developmental lack. In spite of being unable to talk the child had a bright, elfish look. The only suggestion of a cretin appears in the thick upper lip. If the thyroid was stopped there would appear puffiness of the cheek, the dull look in the eyes and the physical signs of a cretin would come on.

DR. CAILLÉ stated that in babies' hospitals many of the babies were found with subnormal temperatures, especially if they had been sick for some time; he did not believe so much stress should be laid upon subnormal temperatures. He also wished to warn against sending young cretins to babies' hospitals for treatment; they should be treated at home where they could be taken out into the open air.

LUMBAR PUNCTURE IN MENINGITIS.

DR. WILLIAM P. NORTHRUP read a paper with this title.

In an extended paper dealing with meningitis he said that in 35 of the Boston cases of meningitis where an autopsy was

performed, the diplococcus intracellularis meningitidis was found in cultures in all but 4, and in 1 of these it was previously found by lumbar puncture. In 55 cases of lumbar puncture in the Boston cases, the diplococcus was found in 38; it was absent in 17. It is noted that early in the disease the number of diplococci found were very small. The character of the fluid when drawn early was turbid, almost like pus; when the fluid was most turbid there was little or no fibrin found. It was noted that as the disease progressed there was a diminution in the turbidity of the fluid. Among the chronic cases there was one in which the diplococcus was present in turbid fluid during an exacerbation. Early in the disease the polynuclear leucocytes were found; later, epithelioid cells and blood-cells. The number of diplococci varied greatly.

Lumbar puncture makes the diagnosis of meningitis. He considered this easy and devoid of danger; it was especially of value in the early stages of the disease. He stated that his personal interest in the subject had been heightened by his experience in 1897. He then gave the following instances:

CASE I.—S. N., aged five years. Clinical diagnosis, cerebrospinal meningitis. There was headache, restlessness, delirium, projectile vomiting, stupor, stiff neck, etc. Lumbar puncture was made and the pressure within was so great that the fluid spurted several feet and much of it was lost. There were absolutely no ill effects from the operation. The child went on the recovery. She has since then been very "cranky."

CASE II.—Child of three years of age, much emaciated. Seven drachms of fluid were removed; it contained leucocytes and came from the puncture drop by drop. Improvement was only temporary.

CASE III.—Child of three months of age. Clinical diagnosis, cerebrospinal meningitis. The fontanelles were tense. Two punctures were made and six drachms of cloudy fluid were removed at the first operation and six drachms of bloody fluid were removed at the second operation. The autopsy showed characteristic exudations of the brain and cord.

In his experience with 30 cases he had never seen any ill effects from lumbar puncture, nor in 20 others that he had been in touch with. He could not say that it had any therapeutic value.

THE TECHNIQUE OF LUMBAR PUNCTURE.

DR. LEWIS A. CONNOR, after giving a few anatomical details, said that the location for entering should fulfil three requirements: (1) where the needle could find a ready entrance; (2) the tip should point in such a way as least likely to produce damage; (3) the fluid obtained should be rich in sediment. Any one of the three lower lumbar spaces should be chosen. At the lumbosacral space the fluid should be richer in sediment. The sitting position should be assumed, but in the delirious, or comatose, there is greater difficulty in operating in the sitting position. The upright position is generally confined to small children. An essential point to remember is that the greatest degree of flexion should be maintained; if the child is sitting it should be bent well forward; the operator should stand on the right side of the patient and bend over the body.

Anesthesia.—General anesthesia is entirely unnecessary in most cases. The skin should be anesthetized with cocaine to permit the needle being introduced without discomfort.

Asepsis.—The same care is demanded here as in the operation of opening any serous cavity.

Land-marks.—It may be well to count the spinous processes from the twelfth dorsal, to which is attached the last rib, downward; or we may take a line across the highest points on the iliac crests, this passes nearly the upper edge of the fourth spine.

Instruments.—An antitoxin needle is best in children. To show the amount of pressure a mercurial manometer may be used.

After locating the desired space, the needle should be introduced a little to one side of the median line; its point should be directed upward and toward the median line. In the horizontal position, the fluid comes out drop by drop, in the upright position, it comes away in streams, sometimes spurting quite a distance. The amount of fluid removed depends largely on different circumstances; if for diagnosis, it is necessary to remove not more than 10 or 15 centimeters; as a therapeutic agent it may be necessary to remove more.

The accidents from lumbar puncture are unimportant and trifling. Occasionally we may not be sure the needle is in the canal; it may be blocked when introduced; there may be in-

flammatory adhesions between the pia and arachnoid, especially in tubercular meningitis; or the contents of the space may be of gelatinous consistency.

DR. AUGUSTUS CAILLÉ said his experience consisted in one puncture in 1895 on the living, and since then perhaps in sixteen individuals; the majority of them were children. He thought spinal puncture was an easy operation; so was intubation; still, if anyone had not done this and should attempt to do it in an off-hand way, without practice, he might succeed and he might fail. Those who contemplated doing it he advised first to see it done and then to try it on the cadaver. Again, there was always danger of breaking off the needle which would be a very unpleasant complication. He believed the sitting position was the best one to have assumed, with the child bent well forward, the so-called "bicycle position." His land-mark was a straight line from one crest of the ilium to the other. Then he places the tip of one finger above that line and the tip of another finger below that line and so he can control that interspace. He thought it was a good idea to make a mark with the finger nail in the skin at a point where we are to puncture; this mark remains about five minutes and gives ample time for introducing the needle. The needle is introduced unattached to the syringe. The fluid that comes is either clear, turbid, cloudy or bloody. If it is clear we may get a sterile fluid or one of a tubercular meningitis. If it is turbid that speaks for meningitis, an acute inflammatory process. If it is bloody we cannot be sure whether that is really the character of the fluid, for it may be due to some injury to blood-vessels in introducing the needle. The fluid should run into a sterile glass the top of which can be closed by passing through a flame and sent to the laboratory.

Curvature of the spine makes lumbar puncture more difficult. The therapeutic effects are only seen in relation to the pressure symptoms. From a diagnostic standpoint he considered it to be of value. After puncture treatment had been tried by introducing substances into the spinal canal, such as iodoform, salicylate of sodium, iodid of potassium, etc., but he had never seen any good result. Recently a colleague had attempted to produce anesthesia in a patient who was unfit for general anesthesia by introducing a solution of cocain into the spinal canal; he used four drops of a 5 per cent. solution and no

effect was produced whatsoever; he attempted to amputate a gangrenous extremity. He thought spinal puncture was a justifiable procedure in some cases; but, as a therapeutic measure, he had no confidence in it.

DR. CARTER stated that in the Presbyterian Hospital the patient was placed upon the side, the fourth interspace was chosen, the needle was entered a little to one side of the median line, and the results obtained were not permanent. He related the case of a tubercular cerebrospinal meningitis; the patient had been in convulsions for two days and all attempts at relief were useless; lumbar puncture relieved the condition at once, although the patient finally died four or five weeks later.

Nephritis in Chicken-pox.—Hans Haenel says (*Centralblatt für innere Medizin*, May 19, 1900), that nephritis as a complication of varicella is not so very rare. Henoch was the first to observe these cases. The affection is usually of a mild character, very seldom fatal. It seems that the complication of varicella with nephritis depends greatly on the character of certain epidemics, as the author observed six cases of varicella, three of which were complicated with renal disease. One of the cases was of unusual character, and is therefore worth mentioning. A child one year old, recovering from an attack of pertussis and bronchopneumonia, was affected with high fever, which lasted for eight days. The physical examination was negative. On the second day the examination of the urine showed quite an amount of albumin, hyalin and granular casts, and red blood corpuscles. On the tenth day there was a new rise of temperature, which was followed by a scanty but characteristic varicella eruption. The author is of the opinion that the primary nephritis was one of the prodromal symptoms and is inclined to think that the abortive eruption was due to the early elimination of the poison through the kidneys.—*Medical Record*. Vol. lvii., Vo. 24.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, April 10, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. ALFRED HAND, JR., read a paper on

THE PATHOLOGY OF CONGENITAL HEART DISEASE.

Many classifications have been suggested, none being perfect. As a good working basis Osler's is useful, which divides the lesions into (1) those due to faults of development, (2) those due to fetal endocarditis, (3) those resulting from a combination of both. According to Peacock, hearts with two or three cavities result from defects occurring before the sixth week, septal defects and misplaced vessels arise between the sixth and twelfth weeks, and anomalies of the valves and persistence of fetal openings occur after the twelfth week. The causes of endocarditis in the fetus are: Infectious fevers in the mother, especially rheumatism; syphilis, it may occur without illness on the part of the mother; microorganisms may penetrate the placenta, or toxins may pass from the mother to the fetus and cause the inflammation. Favoring the latter view is the form of the endocarditis, which is always the sclerotic or chronic, and not the warty. Reasons for the inflammation affecting the right heart oftener than the left are, that congenital anomalies are more common on the right, there is more work to be done, and oxygen is present in greater amount in the blood on the right side. With the exception of the first reason the others apply to post-natal endocarditis, which is more common on the left than on the right. Some of the lesions were then discussed, Holt's tables being quoted, which places defects of the ventricular septum as the most frequent, followed by defect of the auricular septum and pulmonary stenosis.

DR. J. DUTTON STEELE discussed

THE PATHOLOGY OF ACQUIRED HEART DISEASE IN CHILDREN.

The hearts of children respond more quickly than do the hearts of adults to demands upon them, and hypertrophy takes place more rapidly and is considerable in amount. Also, as the tissues are more yielding, dilatation occurs easily. This is due to the general tendency of the child's tissues to adapt themselves to changed conditions and to the absence of degenerative

changes. Acute rheumatism is more apt to affect the heart in children than in adults, and is oftener a primary manifestation of the rheumatic process than a complication. The most serious lesion as far as the immediate outcome of the attack is concerned, is a myocarditis of the infectious type. Endocarditis is important chiefly in respect to its more remote effects. A pancarditis is probably the most frequent form of rheumatic affection of the heart.

Puerperal infection in the new-born may cause peri-, endo- or myocarditis.

Acute infections are frequent causes of heart disease in children. Here also myocarditis is most serious as well as more frequent. When the peri- or endocardium is affected it is as a part of a pancarditis. Diphtheria affects the myocardium especially, rarely the serous membranes. Scarlet fever also causes a myocarditis and sometimes carditis and endocarditis as well. Scarlatinal nephritis usually produces hypertrophy and often dilation of the left ventricle. Rachitis sometimes causes hypertrophy of the right ventricle. The remote effects of the congenital lesions are hypertrophy, and dilatation usually of the right side. Such anomalies appear to render the heart a point of lesser resistance of infections.

The three forms of myocarditis of most importance in childhood are (1) the acute infectious, (2) the suppurative, usually produced by infective embolism, and (3) the chronic interstitial oftenest caused by syphilis. Quick response to stimuli, ability of the general nutrition to recover itself, and the absence of changes in the coronary arteries render the heart in children much more liable to hypertrophy than in the adult, and makes compensation much more thorough. Dilatation is almost always present as well. The right ventricle is relatively oftener enlarged than the left. The reason for this is the absence of arterial sclerosis and the rarity of aortic stenosis in childhood.

Pure dilatation is rare. Failure of compensation is not common in childhood. Acute endocarditis affects the mitral valve in a great majority of cases. The relation of aortic disease to the mitral in adults is 32 to 22, in children 11 to 2. When embolism occurs it is usually in the *arteria sylvii fossæ sinistra*. Of the chronic changes in the heart valves mitral regurgitation is first, and mitral stenosis second in frequency.

DR. F. A. PACKARD read a paper upon

THE SYMPTOMATOLOGY OF HEART DISEASE IN CHILDREN.

Stress was laid upon the absolute absence of characteristic symptoms of valvular disease in children and the fallacy of depending on any means of diagnosis in this condition except that by physical examination. A summary was given of the statements made by various authors to this division of the subject and an analysis of 56 cases in regard to the frequency of the various symptoms was made. Shortness of breath was observed in 29 cases; palpitation occurred in 10 cases; edema of the legs was seen in 9 cases and 7 had epistaxis.

DR. J. P. CROZER GRIFFITH read a paper on

THE DIAGNOSIS OF HEART DISEASE IN CHILDREN.

The principal diagnostic symptoms of congenital heart disease are: Cyanosis, clubbing of the fingers, thrill, characteristic murmurs, and the absence of any great enlargement of the heart. Cyanosis is especially intense in these cases.

The typical murmurs of congenital heart disease are loud, rough and of great intensity.

In general, it may be said that in diagnosis of post-natal cardiac affections in childhood we should observe the following points: Avoid making a diagnosis from the presence or nature of murmurs alone; remember the altered position of the right side of the heart and of the apex-beat in childhood; remember that the presence of an accentuated pulmonary second sound is normal, not pathologic; remember that compensation is acquired very easily in childhood, and that the absence of symptoms does not prove the absence of cardiac disease; remember that the most suggestive symptom is dyspnea, and that edema must be studied most carefully before it becomes of value as a diagnostic symptom.

DR. MEIGS in a paper on

THE PROGNOSIS OF HEART DISEASE

stated that in general it is better than in adults, because the tissues of children are less stiff, and more readily undergo repair. Cardiac disease may even disappear in some cases in children, and the prognosis generally speaking is more favorable than in older persons. The prognosis should be bad or good according to the presence or absence of involvement of other organs than the heart in the disease.

If the other organs are healthy the prognosis is usually good but if other organs are diseased the prognosis is consequently bad. As to the changes in the heart itself he had found that in the cases with great cardiac enlargement the worst prognosis should be made. The character of the murmurs is a matter of relatively little importance in prognosis. He spoke of two cases in which he had observed the disappearance of organic murmurs, in one of them heart disease followed an attack of measles in a child eight years of age. Now, twenty-six years afterward, the patient shows no signs of cardiac disease. In another case after chorea there was a murmur which seemed organic, and great irritability of the heart. The patient is now twenty-three and has no murmur, but still some cardiac irritability. He emphasized the fact that patients with heart disease may have long lives. One patient whom he had observed for years, and who died when over seventy, was said to have had a cardiac disease since early childhood. A woman whom he had attended had cardiac disease since her early childhood and died when she was over fifty.

DR. HARE, in discussing

THE TREATMENT OF HEART DISEASE,

first noted that children are oftentimes entirely free from symptoms, even when organic heart disease is present, and that, therefore, treatment is often superfluous. When treatment is necessary he considered that rest constitutes, in importance, about three-fourths of all the management. He disbelieved in the attempts which are often made to encourage the growth of these children. The stunting is a compensatory process to relieve the damaged heart from as much work as possible, and it should, therefore, not be interfered with. He considered puberty a particularly dangerous period for these children, and insisted that rest is very important at that time. Among drugs he considered alteratives the most important, and thought that arsenic was most valuable, chiefly through its action upon the blood. Anemia is frequently the most important symptom present, and through the improvement of the blood and of the general nutrition of the body arsenic has a valuable influence. The bichlorid of mercury in doses of $\frac{1}{100}$ to $\frac{3}{100}$ of a grain is also valuable. The use of cod-liver oil he discountenanced as a rule because it is likely to increase the accumulation of tissue, and particularly of fat, and thus damages the heart by increasing its work. As a rule, he considered hematics the most important drug. Digi-

talis, he insisted, is used in too large doses, particularly in children. It is likely to show its bad effects more readily in children than in adults. When it is given, he recommends that very small doses should be used, 1 to 2 minims or less, unless an emergency should demand larger doses. Also, it should be given for a few days, and then stopped for several days, to be resumed again. Its action persists sufficiently long to make this method of dosage all that is necessary, and its continuous use is fruitless and likely to be harmful. Strychnin he also considered a seriously abused drug. Temporary good effects are sometimes seen from the use of strychnin in heart disease, but its effects do not last, and increased doses are then necessary, and this ultimately causes severe general nervous irritability of the heart with other tissues. He mentioned the case of a child that had a pulse of 160 of irritable character, with slight persistent temperature following typhoid fever. The child had been on doses of 1-30 grain of strychnin four times a day for a long time, and when the strychnin was stopped the pulse rapidly decreased to normal, and the temperature soon disappeared. He stated that strychnin is a whip to the heart and not a tonic. As to alcohol, he considered that it is rarely necessary in heart disease of childhood.

DR. STENGEL stated that the descriptions that are found in text-books on diseases of children are oftentimes incorrect and confusing because the experience is derived to a considerable extent from the study of adult cases. The symptomatology is frequently very obscure in children. One symptom which he has found to be very common and striking is a peculiar listlessness and disinclination to play. In boys there is often a tendency to become very girlish in manners and in the forms of their diversions; they are likely to play with girls because the sports of other boys are physically too rough for them. They may even take up needle work and similar amusements. Mitral stenosis particularly has in his experience often been associated with hypoplasia, and, in boys, with both physical and mental femininity. The most striking symptoms of cardiac disease in children is the general behavior of the child. In the idiopathic edema of childhood, it is always well to be on the lookout for obscure cardiac disease. One case which he had observed had pronounced edema, which was so far as could be determined without organic cause. There were no signs of

cardiac disease for a long period, but ultimately cardiac disease was discovered. It is not improbable that a considerable number of cases of idiopathic edema in children are the result of obscure cardiac disease which at the time of observation was undiscoverable. Digitalis is greatly abused, and it is, as generally used, more likely to do harm than good. There are few cases in which it does good, while he had observed in a number of instances in which serious harm resulted from its use.

DR. A. E. ROUSSEL said that, regarding the statement of a speaker, that he had been unable to find any record of cases of ulcerative endocarditis following measles, he would state that such cases do exist and are probably more common than given credit for. He recollected at least one case.

A young woman about eighteen years of age some three weeks previously had had a severe attack of measles, and after having entered into convalescence was suddenly seized with severe chills followed by fever, sweats and marked prostration. After further treatment by the family physician for about two weeks she was removed to the hospital where she died within thirty-six hours. The autopsy confirmed the hospital diagnosis of ulcerative endocarditis.

The diagnosis of these cases is by no means easy, especially when the murmur may be absent until late in the disease. A boy about twelve years of age entered into convalescence after typhoid fever, and had a normal temperature for about a week when he was taken with a series of chills accompanied by an intermittent fever, sweats, etc. This continued for about two weeks, during which time no cardiac murmur could be detected. The spleen now commenced to enlarge until it reached as low as the level of the umbilicus, and about one week before death the heart murmurs appeared. Autopsy showed a beautiful specimen of ulcerative endocarditis and infarct of spleen.

His experience differed from the views endorsed by Dr. Meigs concerning the rather favorable prognosis of valvular diseases in children. It was his observation that most of those affected in this manner are apt to die at about the period of puberty. Not only is the compensative hypertrophy and subsequent dilatation a much more rapid process in the young, but it is at this time that additional demands upon the heart are made by the system, and, as a rule, this organ is not equal to

the strain. He confessed himself rather skeptical concerning the total recovery from a previously well-defined case of valvular disease of the heart. Doubtless, many previously existing murmurs disappear, but given such a murmur with definite existence of cardiac hypertrophy as corroborative evidence, the restoration of such a condition to a perfectly normal heart must be very rare.

DR. ROBERTSON had recently observed a peculiar form of dyspnea in a case of acute endocarditis which arose after exposure. The patient presented first a mitral regurgitant murmur, beginning thirty-six hours after the onset of joint involvement, this latter, as is often the case, being insignificant in character, and thirty-six hours later a murmur of mitral stenosis. The peculiarity of dyspnea was that while the child was usually breathing from 60 to 80 times in the minute, its respirations would suddenly run up to from 105 to 110 a minute, the rapid respiration not being accompanied by any signs of distress, and being, therefore, not a real dyspnea, but a condition that may be likened to tachycardia, and is well described only by the word tachypnea.

DR. MEIGS stated that apropos of the mention of the occurrence of edema from obscure cause he would speak of a case which he saw years ago in a child between one and two years of age. The baby had had summer complaint but had improved greatly when edema of the feet and ankles appeared and became so marked as to cause extreme distension of the skin. It was a strikingly hard form of edema which did not pit on pressure. The boy recovered entirely from this and is now fourteen years old, is thoroughly well, and engages in trying athletic games. He has never been very ill since, and has never had any evidence of heart disease and heart disease cannot be said to have caused his edema. The case is a confirmation of the statements made that edema may appear in childhood and not be traceable to any organic cause.

DR. HARE confirmed Dr. Meigs' statement that many of these cases have very long lives. He had observed a man of fifty-seven who had scarlet fever at seven and probably had endocarditis at that time. At any rate he had been told since his early childhood that he had organic disease of the heart, and certainly has it now. He has been strongly addicted to alcohol and has led a hard life, but in spite of this he has fair comfort

and has lived to be fifty-seven years of age. Another man observed, and who is now over sixty, has had mitral stenosis probably since his early childhood, and suffers no inconvenience from it. These are exceptions, however, and children with cardiac disease are likely to get along fairly well until they are nine or ten years old. They oftentimes begin to show distress at this time, and in later childhood, about the period of puberty, they become seriously distressed and oftentimes do not reach adult life.

DR. GRIFFITH said that the general impression left by the previous speakers was that these children are extremely likely to die at puberty. While this is oftentimes the case it is certainly erroneous as a general statement, for large numbers of children with organic disease of the heart pass through puberty without serious trouble. That many of them do survive puberty is shown by the statistics which Dr. Osler collected concerning complication of chorea with heart disease. Certainly the larger number of cases which he reported in which chorea had been complicated with heart disease developed their chorea in early life and hence the heart disease also. Nevertheless many of these patients when re-examined had gotten years beyond puberty without any grave distress. This is certainly evidence that very many cases of cardiac disease may pass puberty safely.

DR. ROBERTSON had observed one case of interesting edema in a child between two and three months of age. The infant was overfed and had an acute enteritis which had persisted for three weeks in spite of treatment. An edema of the face, hands and feet then appeared which was of the same curiously hard character as in the case mentioned by Dr. Meigs, and did not pit on pressure. There was no heart lesion evident.

The urine showed a good deal of albumin with hyaline and hyaloepithelial casts and renal cells, and some leucin and tyrosin. The child died soon after of exhaustion. The autopsy showed no macroscopic kidney lesion and no heart lesion. There was, however, an infarct in the lung, and cultures from this infarct, from the spleen and from the heart blood showed a streptococcus. The case was undoubtedly an acute infection, and was probably a nephritis which would have been evident upon microscopic examination, but was not apparent to the naked eye. Notwithstanding the diarrheal trouble there were no gross intestinal lesions *post-mortem*, thus seeming to indicate an effort on the part of the bowel to throw off the poison.

DR. HAND stated that he had often been struck by the general appearance of children with cardiac disease, but the characteristic which has seemed most pronounced to him had been more than the restlessness of which Dr. Stengel spoke. In a number of cases it has been more of a mental antagonism toward its care-takers, an unwillingness to be cared for, which often makes it difficult to manage the cases properly. This irritability seemed to him a symptom of some importance. Digitalis was, as stated, more likely to do no good, and often does harm in some cases, but in dropsical cases it does do good. In one case in which there was enormous dropsy digitalis was given up to 30 drops of the tincture four times a day, with strikingly good results. The dropsy vanished with astonishing rapidity, and the boy regained comfort. He knew of a case in which the signs of organic disease of the heart apparently disappeared. The child was first observed in 1892 at the Children's Hospital. She was anemic, had repeated nose bleed, and a mitral regurgitant murmur, with enlargement of the heart, the diagnosis being confirmed by several observers. The child was sent to the country, and disappeared from observation for some time, but some years after was seen again and had absolutely no evidences of cardiac disease.

Pediatric Studies.—W. Camerer (*Wiener Klinische Rundschau*, January 14 and 21) gives the weight and growth of 250 infants. The tables show that the weight at the end of the first year depends more on the weight at birth than on any other factor. The growth is less during the first four months with artificial feeding, but this is compensated by the increased growth of the next four months and following weeks. Other tables show that after the rapid growth of boys during the first years, the increase falls off to about 5 cm. a year between the ages of four and twelve, increasing again between twelve and sixteen to 6.5 or 7 cm. a year, and stopping with the end of the seventeenth year. Girls grow 4 to 5 cm. a year between the fifth and tenth year, increasing to 6 cm. a year, and stopping after the fifteenth. If the height increases after this age, this retarded growth must be referred to disturbances in growth which occurred during the period of physiologic development. Tables of the chemical constitution of the new-born show much more water and fats than in adults, and less nitrogenous elements. The total lecithin in the infant body amounted to an average of 16.51 gm.—*The Journal of the American Medical Association*. Vol. xxxiv., No. 7.

Current Literature.

PATHOLOGY.

Naegeli, Otto: The Frequency, Localization and Healing of Tuberculosis. (*Virchow's Archiv.* Vol. clx., No. 2.)

Among 500 autopsies, studied with extreme care, there were 88 under the age of eighteen years. Only 15 were tuberculous, or 17 per cent., while of the adult cases 93 per cent. had some tuberculous lesion. Of the 15 tuberculous children 10 died of tuberculosis, although it had been diagnosed clinically in but five. Both progressive and healed lesions were rare; that is, it is uncommon to find, in older children, tuberculous lesions which have not proved fatal in early childhood. There were 4 cases of progressive but not fatal tuberculosis, and one healed case; three of the 5 were fourteen years of age.

The tracheobronchial lymph nodes were involved in every one of the 15 cases; the lungs in 9, and the meninges in 4; there was a solitary tubercle in the brain in 4 cases; while the pleura, pericardium, mesenteric lymph nodes, tonsils, uterus, tubes, liver, spleen and vertebræ were each involved once. Miliary tuberculosis was found in 3 cases, 1 being acute and 2 chronic. The tracheobronchial lymph nodes were involved alone in 4 cases. Ascending tuberculosis of the lymph nodes (from the root of the lung to the neck) was positively established 4 times, while a descending process was found but once.

Cheesy degeneration was present in 14 cases, twice combined with calcification, which existed alone in one case. The very marked importance of the lymph channels in the propagation of tuberculosis of the respiratory tract is proved by the fact that in a number of cases the lymph nodes, even within the lung, were involved, while the lung parenchyma remained unaffected. This view is further proved by histological examination, which shows the lesion to be of the lymphagenous, interstitial, productive form. The right lung was involved alone in 6 cases, the left alone in 1 case, both in 8.

Twelve newly born infants and 16 under one year of age were absolutely free from tuberculosis. On the other hand there were six fatal cases among 35 children between the ages of one and five years, death being due to tuberculous meningitis and miliary tuberculosis in 4, and to pulmonary tuberculosis in 2. Twelve autopsies were performed upon children between five and nine years, and tuberculosis found in 4 (3 fatal, 1 latent.) Of thirteen autopsies on subjects aged from nine to seventeen years, 5 had tuberculosis, 3 in a latent form. In all of these latent cases the lesion was located in the tracheobronchial lymph nodes, and in 1 case complete calcification had rendered the tuberculosis harmless.

Heptoen, Ludwig: The General Characteristics of Ray Fungi and their Relation to Certain Bacteria. (*The New York Medical Journal*. Vol. lxxxi., No. 21.)

The ray fungi have been classified as a family of the hyphomycetes, and also as the connecting link between these and the schizomycetes. Heptoen prefers to regard them as a distinct group, closely related to the simplest moulds and to the bacteria. Typical ray fungi develop from small round spores (conidia) into cylindrical, branching threads. As a rule, they stain like the bacteria and the pathogenic forms act like the bacteria. Both segmentation and fragmentation occur; the majority are aerobic and facultative anaerobic, grow best at 37° C. are proteolytic, produce a moldy or earthy odor, and some form pigment. They are abundant in nature, and, as a rule, seem to acquire pathogenic powers with difficulty. They have been found in the digestive tract and vagina and upon the skin and conjunctiva of healthy human beings. The lesions they produce are essentially chronic, characterized on the one hand by the production of granulation tissue with foci of suppuration, and on the other by the formation of nodular processes with caseation—pseudo-tuberculosis; the production of virulent toxins seems of slight significance. Atypical ray fungi occur, and seem to form connecting links between the highest ray fungi and the nearest bacteria, or, at least, organisms now classed as bacteria, but which sometimes produce branching forms and under special conditions in the tissues may group themselves in masses with bulbous, hyaline projections. Such organisms are the tubercle bacillus and its allies, the bacillus of diphtheria, bacillus of glands and a few other less well-known organisms.

That the bacillus of human tuberculosis forms branching filaments has been known since Cornil and Babes figured them in 1883, and the branching forms of the bacillus of avian tuberculosis were described by Maffucci in 1892. Moreover, by passing the tubercle bacillus (human) through the bodies of frogs and lizards, Bataillon and Terre and Möller proved that it becomes so modified as to adapt itself much better to a saprophytic existence (it had always been considered strictly parasitic) and the branching is much more pronounced. This has been regarded as something of a reversion to an originally saprophytic existence by Lubarsch. Since 1897 the tubercle bacillus has been described various times as forming club-shaped masses in the tissues. The clubs represent malformations due to hindrance of growth rather than purely degenerative changes.

Diphtheria bacilli have been frequently described as forming branches, but they have not been found to form clubbed granules in the tissues.

It seems most rational to place the tuberculomycetes in the sub-group of the atypical, acid-proof ray fungi. The other branching bacilli simply resemble the polymorphous atypical ray fungi in many respects. Tuberculomycetes, or tubercle fungus, is the most significant name, at present, and indicates our morphological and botanical conception of the organism. The accepted beliefs concerning its etiological relation to pathological conditions remain unchanged.

DERMATOLOGY.

Hutchinson, J.: Ichthyosis Herpetiformis, or Biett's Bands. (*The Polyclinic.* Vol. ii., No. 1.)

Imagine a fat, chubby child of a year old, whose thighs look as if marbled with thin mud, and upon whose abdomen and neck are large patches which suggest simply the need of soap and water. So exact was the resemblance to dirt that the mother was asked if the streaks and patches could not be washed off. Critical inspection, however, led to the observation that one streak ran vertically up the middle line of the abdomen from pubes almost to navel; that there was a collar all round the neck, from which another vertical band wholly confined to one side ran up to the chin. The use of a glass showed also that the mud streaks were slightly papillary in places and a little raised. This was more especially seen on the back of the child's neck. Many of the streaks and patches were bilateral and almost symmetrical, but there were very marked deviations from symmetry. This was especially the case in the vertical bands, which ran up just on one side of the mid-line of the trunk but did not transgress it. These vertical bands were quite characteristic of the affection, and placed it without hesitation amongst the congenital defects in the development of the skin to which the term "ichthyosis" has been given. The peculiarity of the case consisted in the fact that the changes were so very insignificant in amount. The mud-column did not depend so much upon pigmentation as upon a slight alteration in the surface of the skin, which rendered it prone to accumulate particles of dirt and very difficult to wash. In more advanced cases the skin becomes rough with dry papillary outgrowths, and these are always almost black with dirt, which it is impossible to remove. The unaffected portions of skin remained perfectly healthy, a condition never observed in the other forms of ichthyosis. In the commoner forms of diffuse ichthyosis or xeroderma almost always more than one child in the family is affected, whereas in this never more than one.

As regards treatment it was advised to allow the child to grow up and then to destroy any patches which were disfiguring by light applications of the actual cautery.

SURGERY.

Nicoll, J. H. : Notes on Clinical Surgery. Case of Congenital Stenosis of the Pylorus. (*The Glasgow Medical Journal.* Vol. liii., No. 4.)

A baby of five weeks had a congenital stenosis of the pylorus shown by vomiting fifteen to twenty minutes after each meal. The vomiting was a complete ejection of all the milk taken, in large part clotted but not otherwise changed. It was not preceded or accompanied by hiccough, nausea, pain or difficulty and when the vomiting was accomplished the infant appeared to be perfectly comfortable, until hunger induced another meal, which in due time was vomited as was the previous one. There were progressive emaciation and weakness and the dilated stomach could be readily detected. Peristaltic waves were at times marked.

The pylorus was found represented by a bulky ring of muscular tissue. The operation done was practically a Loreta's. An opening was made in the stomach and a pair of dressing forceps was passed through the constriction and the blades forced open until the peritoneal coat ruptured. After eight months the baby was well and sturdy and was gaining all the time without any indication of a recurrence of the stenosis.

The general subject of "congenital hypertrophic stenosis of the pylorus" is considered. The important part of the subject is the diagnosis as shown by 1, Peristaltic gastric waves; 2, Periods of normal dilatation of the stomach alternating with periods during which the organ may be felt like a ball; 3, Marked abnormal dilatation of the stomach associated with a collapsed condition of the rest of the abdomen due to the empty state of the intestine; 4, Pyloric tumor, detected by palpation. In the large majority of recorded cases this is not mentioned.

Rutherford, Henry : On Thorax Resection for Empyema and the Resulting Deformities. (*The Glasgow Medical Journal.* Vol. liii., No. 4.)

A girl, aged seven years, was admitted to the hospital with a discharging empyema on the left side that had lasted over a year.

An operation was undertaken, the chest wall was resected from the ninth to the fifth ribs inclusive, the portions of ribs removed being about $4\frac{1}{2}$ inches long. The pleura was greatly thickened. The opening in the pleura was found to be small and there was a fistulous opening connected with the lung. As the discharge continued free some parts of the second, third and tenth ribs with corresponding tissue were removed.

Three months after the operation she was discharged in

good condition. The heart was almost entirely to the right of the median line.

After a consideration of the advisability of the severe operation the author expressed his opinion as in favor of the extended resection because the twelve months' collapse of the chest gave little or no chance of re-expansion.

Resulting from the operation there was the usual sinking in of the chest wall. There was no lateral curvature of the spine but there was a condition of atrophy of the abdominal muscles due to the resection of the chest wall and interference with the intercostal nerves.

The second case was in a boy of thirteen years, who had an open empyema due to the perforation from an abscess around a tubercular rib. Several of the ribs were the subject of tubercular osteitis and all the ribs from the second to the tenth were removed.

There was, after the operation some atrophy of the upper half of the abdominal wall on the right side.

The general results were not so satisfactory as in the previous case and there was a suspicion of amyloid disease.

In these operations of thorax resections, where there is great thickening of the pleura or where it is markedly tubercular it will interfere more or less with the result.

As the bleeding in thorax resection cannot fail to be considerable it is desirable and at times necessary to do the operation in stages.

III, E. J.: A Clinical Contribution to the Knowledge of Intussusception of the Bowel in Children. (*The American Medical Quarterly*. Vol. i., No. 3.)

The report gives clear clinical histories of five cases of intussusception in babies and children. The youngest, a baby of four months, did not survive the operation, which was undertaken after the symptoms had lasted seven days. The two oldest cases were children of six years. Four of the five cases recovered after operation.

The clinical history of these cases is remarkable for its singular simplicity. A child, generally of good health, but now and then suffering with intestinal disturbances, colicky in character, is taken suddenly ill with violent pain, usually of intermittent character. There is a much greater prostration than can be accounted for by a simple indigestion. The face shows great pallor and anxiety. Tenesmus is not an infrequent symptom, especially when the intussusception is located low down in the large intestine. It is accompanied by discharges of bloody mucus, which is very acute and in severe cases may even be bloody serum or pure blood. In the cases of incomplete obstruction there is not much, if any, bloody discharge. The

strangulation of the gut being incomplete, its circulation is little disturbed. Usually in twenty-four hours there is a gradual increase of temperature. The pulse, contrary to the report of many, is noted as rapid, and showed by its quality the severeness of the injury. Tympanites, which in the early stages is slight, gradually increases until, when peritonitis supervenes, it becomes excessive. The obstruction is not always complete, and this is, unfortunately, in the eye of the non-surgical practitioner, a good reason for non-operative interference. When the obstruction is not complete nor very acute the symptoms of prostration in regard to facies and pulse are not so marked. The treatment of these cases is operative and the author has no respect for the temporizing and useless efforts of posture and enemata. Every hour's delay increases the risk to the child.

The prognosis will depend upon six conditions:

1. The length of time elapsed after the accident before the operation. An operation on a dying patient is a discredit to surgery, and eleventh-hour operations are to be discouraged.
2. The length of the operation. The anesthetized patient should not wait for the operator. The operator should be ready, knife in hand, when the little patient is receiving the first whiff of the anesthetic.
3. Most careful asepsis.
4. Freedom from injuries to the bowel.
5. Extent of the invagination. The larger the invagination the more serious the operation.
6. The location of the intussusception.

Hawley, C. W. : Mucocoele in the New-Born. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 7.)

The word mucocoele is applied to chronic cases of stricture of the nasal duct with the presence of a tumor, and when the tear-sac is chronically affected. It is a dacryocystitis. Six cases in infants are reported and the author regards that number as unusual as few histories are published.

The indication is to establish drainage into the eye if it is not possible to cause flow into the nose. The tumor should be opened by a small incision.

Probing should be done under an anesthetic.

Montgomery, W. P. : The Treatment of Imperforate Rectum ; An Analysis of Ten Cases, in Nine of which Colotomy was Performed. (*The Lancet.* No. 3988. 1900.)

The babies who were operated upon were most of them two to five days old. One was one month old. In this case there had been a gradually closing recto-vaginal fistula.

Three of the infants were sent home immediately after operation. Two of these patients are alive. One died five days after the operation. The other six cases in the hospital died. The two considerations influencing the choice of opera-

tion were the size of the pelvic outlet and the general condition of the baby.

The perineal repair in these babies does not seem great, and in the *post-mortem* examinations the line of union fixing the gut was in each case very thin. In the colotomy operation the suture of the gut to the abdominal wall should be especially carefully performed. Feeble babies are not in a condition to stand prolonged operations and a colotomy is much more suitable for most cases than the perineal operation. On most accounts an immediate colotomy is the better operation.

Rogers, W. B. : Surgical Clinic. (*Memphis Medical Monthly*. Vol. xx., No. 2.)

A boy of five years had had difficulty in controlling his urine since babyhood. The perineal, lateral operation was done. As the stone was large a lithotrite was used through the perineal wound. The stone was primarily of lithic acid formation, but it had become encrusted with phosphates. The fragments weighed 150 grains. The boy made a good recovery.

MacCallum, J. M. : Complications of Suppuration of Middle Ear. (*The Canadian Journal of Medicine and Surgery*. Vol. vii., No. 4.)

The article is a clinical record of cases descriptive of the complications of suppuration of the middle ear affecting the mastoid. The mere appearance of an abscess on the external surface of the mastoid is no guarantee that the pus has not at the same time made its way into the cranial cavity.

The first case was a girl of nine years who had had scarlet fever when three and a half years old. There had been an intermittent suppuration for almost six years. There was a thrombosis of the sigmoid and lateral sinuses for which an operation was done. The child died within twenty-four hours.

The sudden cessation of discharge followed by pain in the ear, and head, vomiting and chills, are symptoms which may indicate the supervention of sinus thrombosis, abscess of the brain, or meningitis. In thrombosis, the chills are usually both more frequent and more severe, the temperature higher, and the pulse more frequent than in brain abscess. The diagnosis in this case was also strengthened by two other facts, *viz.* : The line of tenderness along the edge of the sternomastoid, due to involvement of the external jugular, and the slighness of the edema, for mastoid edema is less in thrombosis than in true mastoiditis, because in the former case it is mechanical, while in the latter it is inflammatory.

The second case was that of a girl of six years who had an acute mastoiditis with a leptomeningitis from which she died.

An operation showed an extended area of granulations over

the sigmoid sinus. The general symptoms were those of meningitis of the base.

A girl of two years had a bilateral mastoiditis which followed scarlet fever. A left facial paralysis followed an operation on the right mastoid and it was thought that the brain might be diseased, but an operation on the left side showed that there were granulations and the aqueductus Fallopii was found open with the facial nerve exposed.

The fourth case was a boy of nine years who had scarlet fever, followed after four weeks by mastoid pain and edema. The parents refused operation, but later allowed it, when the mastoid was found destroyed though the temperature was 98.4° F., to 99° F. There was pus low down in the neck.

Clark, F. S., and Bunts, F. E.: Intussusception in a Child of Seven Months; Operation and Recovery. (*Cleveland Journal of Medicine.* Vol. v., No. 4.)

A baby of seven months had been somewhat constipated, but the bowels were moved by medicine. The baby began to scream and an enema was given which brought away casein masses and some blood. Vomiting ensued. Under chloroform there was no tumor detected in the abdomen. The intussusception was of the ileo-cecal variety.

Six weeks after the operation the baby was apparently well when symptoms of severity were noticed. The pulse was 160 and weak, and the temperature was 100° F. The abdomen was soft and apparently not tender. Clear mucus was vomited. No bloody stools. It was decided not to operate and the baby died twenty-four hours after the appearance of the symptoms.

The autopsy disclosed a great many adhesions that were easily broken. About eight inches from the cecum there was a band that passed from the ileum over a loop of the intestine. This had caused death. It was thought that this band had formed since the operation. After a consideration of the case the recorders agreed that another operation would not have been justifiable.

Lediard, H. A.: Two Cases of Intussusception; Operation; Recovery. (*The Lancet.* No. 3990.)

CASE I.—Boy, two years and five months. There was vomiting at the onset. This was accompanied by diarrhea and a passage of bloody mucus. An abdominal tumor could be felt in the left iliac fossa and per rectum.

Attempts at reduction by inflation and enemata failed. On operation the tumor was found to be colon into colon. The patient did well.

CASE II.—Male infant of six months. The illness began with vomiting and diarrhea and the passage of blood-stained

mucus. The intussusception was reduced by injections of air and fluid, but two days later the symptoms were so severe that immediate operation was advised. The tumor stretched across the abdomen above the umbilicus, and there was a tumor above the pelvic brim on the left side. When the abdomen was opened it was found that practically all the large intestine was involved. The baby was comfortable after the operation and had a movement on the following day. Recovery was uneventful.

Smythe, F. D. : Vesical Calculi in Children. (*Memphis Medical Monthly*. Vol. xx., No. 2.)

CASE I.—A boy of five years was uremic when suprapubic cystotomy was done. A phosphatic stone was removed, but the child died in uremic convulsions the third day after the operation.

CASE II.—A boy aged five years. Family history of tuberculosis. There was a pericystic abscess with a diseased condition of the bladder. The stone was phosphatic and weighed 209 grains. There was a general pyemic condition, and the patient died.

CASE III.—Boy of four years. Gouty family history. Small stone detected. Lithia water ordered, and operation delayed until calculus gives further trouble.

CASE IV.—Male negro child of two years. Child rickety and badly nourished. The stone was removed by the suprapubic operation. The case is one of the youngest on record for suprapubic lithotomy.

The reporter of the cases does not believe that the uric acid varieties of stone predominate in children to the extent indicated in the literature of the subject. In children the usual symptoms are greatly aggravated, and the enlargement of the extra genitals, the priapism and the prolapse of the rectum are peculiarly suggestive of stone in the bladder.

Knott, V. B. : Cerebral Cyst; Report of a Case. (*The Journal of the American Medical Association*. Vol. xxxiv. No. 16.)

A boy of fourteen years of age fell on his head when he was ten years old. After symptoms of dizziness, unconsciousness and headache he began to improve, and four weeks after the accident he was able to play as usual. When he was thirteen years old it was noticed that he dragged his right leg and he limped. His left eye was "crossed." He had convulsions. When examined he was found to have complete paralysis of the external rectus of the left eye, with left convergent strabismus. There was no impairment of the visual power of either eye. No choked disc, no optic neuritis. The right leg was weak

and the grasp of the right hand was weaker than that of the left.

His memory was poor. He had a headache almost constantly. He had a convulsion soon after entering the hospital and it was observed that the right arm and leg were simultaneously first involved.

For the operation a point was selected about one inch in front of the upper part of the fissure of Rolando and at the posterior portion of the first frontal convolution. The bulging of the dura mater was very marked. A cyst was found which enclosed an ounce of clear, straw-colored fluid. The cavity was packed with iodoform gauze. The recovery was uneventful. After the operation he did well for twenty-four hours, when he had two convulsions, and for the next week he had two convulsions a day. He had no further seizures after the tenth day. The arm improved, but the leg did not show any change. The strabismus continued, but the boy is brighter and does not suffer from headaches.

Morton, Chas. A. : A Successful Case of Celiotomy for Intestinal Obstruction Due to Persistent Meckel's Diverticulum. (*The Lancet.* No. 3990.)

The patient was a girl nine years old. The illness began with headache and vomiting. On the third day of the illness there was pain situated in the umbilical region. The pulse was 100 and the temperature was between 99° and 100° F. On the fourth day there was some general tenderness but the abdominal walls were not rigid. There was a passage of blood or mucus from the bowel. The passage of feces and of flatus could not be learned from the history. On opening the abdomen and liberating the distended bowel it was found that the constricting ring into which the bowel had slipped was formed by a persistent Meckel's diverticulum.

The child made a good recovery.

Cassel: Cases of Tubercular Peritonitis with Recovery. (*Die Medicinische Woche.* 1900. No. 21.)

Cassel has observed eighteen cases of tubercular peritonitis in children under eleven years of age. Three died, seven were operated with three deaths and four recoveries. Two cases recovered spontaneously. One case was still under observation at the time of the report and in five cases the termination was unknown. The cases that were successfully operated on are remarkable, because in spite of the generally bad results of operation in children under eleven years of age, these children operated on three and four years ago still show no signs of any recurrence. The diagnosis in these cases was confirmed by histological examination. In four cases heredity entered as a

factor. In all cases tubercular peritonitis existed uncomplicated by tuberculosis in other organs. Chronic diarrhea was present in five cases. The diagnosis was based principally on the demonstration of tumors, situated under the abdominal walls, freely movable and varying in size from a walnut to a child's head. By the presence of this tumor the disease is distinguished from simple chronic serous peritonitis, which as a rule, is febrile, does not confine children to the bed, or produce emaciation and tends toward spontaneous recovery. Although cases of spontaneous cure of tubercular peritonitis have been observed the prognosis is very grave. Medication is useless, but the influence of the sea climate seems to be very beneficial. Indications for operation are continuous fever, increasing distention of the abdomen, and marked emaciation. The form of the disease that is not accompanied by ascites is considered as the more grave.

Rice, J. D.: *A New Method of Treating Femoral Fractures in the Infant.* (*The Lancet.* No. 3999.)

A newly-born baby had a fracture of the upper third of the right femur. As there was difficulty in keeping the fragments in apposition, the limb was turned up to flex it on the abdomen, the foot being over the shoulder. A bandage was then applied. The cot was raised six inches and a loop of bandage was carried around the ankle and fastened to the rail of the cot; sand bags were used to prevent a lateral motion. The baby did well. The idea was that the position of the baby could be maintained as in utero better than by the usual means of extension.

Wilson, Wright: *Case of Fibromata in the Nasopharynx of a Child.* (*The Birmingham Medical Review.* Vol. xlvii., No. 260.)

A girl of nine years had the open mouth of adenoids, but was not deaf. There was seen to be a granulating mass between the tonsils and below the soft palate. On removal the growths were found to be of a fibro-myxomatous structure. The tumor was evidently at first a myxoma. There was no sign of a malignant character. In the recurrence of such a growth it is probably a new growth of the tumor. The points of interest are: 1, the sex of the child; 2, her age; 3, the rarity of the disease; 4, the absence of symptoms other than that of the open mouth.

Wallis, F. C.: *A Case of Enterectomy by End-to-End Suture in a Boy Aged Seven.* (*British Medical Journal.* No. 2051.)

A boy of seven years had when three years old a tuberculous peritonitis. He was under treatment and did well, but three years later he developed acute intestinal obstruction for the relief of which an opening was made below the umbilicus and a

portion of the small intestine was stitched to the skin. Food appeared in the opening two and half hours after it had been swallowed. The fluid contents of the intestine constantly oozed from the opening and the digestive action of the intestinal juices was shown by the action on the skin which was made raw and bleeding.

Under an anesthetic 5 inches of the intestine were resected. The cut ends were united by interrupted sutures. The boy was fed by the rectum for forty-eight hours, after which he was given fluid nourishment by the mouth in gradually increasing quantities. The bowels moved on the third day. The boy did well and recovered.

MEDICINE.

Morse, J. Lovett: Three Unusual Cases of Angioneurotic Edema in Infancy. (*The Boston Medical and Surgical Journal*. Vol. cxlii., No. 1.)

Three cases of this interesting condition are reported. The babies were aged respectively twenty-three, seven and four months. The arms were the extremities that were edematous and all the cases seem to have been induced by cold or changes in the temperature. In one case the edema may have resulted from some injury at birth, though the history was not definite.

Stephenson, Sydney: Diphtheria of the Conjunctiva. (*The Lancet*. No. 3990.)

The mere existence of a membranous exudation on the conjunctiva is in itself no evidence of a diphtheritic process, but the presence of such a product should at once suggest a bacteriological examination. The diagnosis of conjunctival diphtheria should never be made in the absence of the Klebs-Löffler bacillus.

A case in point was that of a boy of two and a half years who had diphtheria of the left eye. There was a muco-purulent discharge and the palpebral membrane was covered with an exudate. The ocular conjunctiva was free from false membrane. There was a serous discharge from the nose but no signs of diphtheria could be detected there or in the throat. The preauricular and the lymph nodes at the angle of the jaw were enlarged. There was albumin in the urine. The temperature was 98° F. and the pulse 104.

The conjunctiva was painted twice a day with a 15 per cent. solution of permanganate of potash solution and the eyes washed with a saturated solution of boric acid. There was a sore place on the scalp covered with a grayish membrane. This was treated locally with an ammoniated mercury ointment. Anti-

toxin was injected. The bacteriological examination disclosed not only the Klebs-Löffler bacillus but also the staphylococcus albus and staphylococcus aureus.

There was some ulceration of the cornea that yielded to treatment. The child was discharged after a stay of twenty-two days in the hospital, during which time the temperature was almost normal, except after the injection of antitoxin.

Class, W. J.: Scarlatina: Scarlatinous Sore Throat. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 8.)

Three hundred cases were observed. Two hundred and twelve were cases generally called scarlet fever, and 88 were without any, or with scarcely perceptible, skin lesion. In all of the 300 cases the throat culture showed the presence of the microorganism previously described by the author. Cultures taken from the throat of a scarlet fever case will show the diplococcus scarlatinae. Early in the disease it will be present in great numbers; later it will be present in diminished numbers. A number of cases are recorded to show the similarity of infection in cases of so-called "tonsillitis," scarlet fever sore throat, and scarlatina, so far as the presence of the diplococcus is concerned.

The diplococcus scarlatinae is believed to be the causative factor in scarlet fever. The germ is invariably present in the throat secretions, blood and scales of a patient having scarlatina, and it is a separate and distinct organism not heretofore described. It has been proven to be a pathogenic microorganism, killing mice, when injected in minute quantities, in a space of time varying from less than one to twenty-four hours, according to its virulency. It produces in swine a disease whose macroscopic lesions closely resemble those seen in scarlet fever, as it occurs in the human subject. The presence of blood from a patient who has just recovered from an attack of scarlet fever inhibits its growth. The subcutaneous injection of a virulent culture into guinea-pigs will, under certain conditions, produce a nephritis. The blood serum of a person who has passed through scarlet fever protects an animal against the invasion of the germ.

Zahorsky, John: A Few Clinical Studies of Cardiac Diseases in Infancy and Childhood. (*The New York Medical Journal.* Vol. lxxi., No. 6.)

The author believes that considerable confusion exists concerning the significance of cardiac lesions in infancy and childhood. He expresses the opinion that cardiac disorders are extremely common in children but are often overlooked. The fact that endocarditis may be mistaken for malaria is illustrated by a case. Pain in the region of the heart should lead to its

examination, and the reports of cases show how frequently this symptom was found accompanying an endocarditis. Anemic murmurs are not regarded as common but their presence is noted. In one case the injection of antitoxin was followed by rheumatism, urticaria, endocarditis and chorea. Malnutrition in young children frequently depends on chronic valvular disease. Other symptoms and associations of heart disease are described by histories of cases. Much difficulty is found in the diagnosis of congenital defects of the heart, especially when no symptoms are present.

Mackenzie, Hector: The Mortality and Frequency of Pneumonia, as Affected by Age, Sex, Seasons and Habits. (*The Practitioner.* Vol. lxiv., No. 1.)

In a study of the statistical records of pneumonia the mortality is shown to be 5.4 per cent. to all deaths under one year; between one and five years the mortality is 6.5 per cent. of all deaths; between five and ten years it is 5.6 per cent. of all deaths, and between ten and fifteen years it is 3.9 per cent. of deaths from all diseases.

Thus the percentage rises after the first year, during the period one to five, then falls till the period ten to fifteen is reached, after which it rises.

Vervaeck, L.: Contribution to the Study of Anomalies of the Heart. (*Arch. de Méd. des Enf.* Vol. iii., No. 6.)

A girl four and one-half years old came under observation shortly before her death from bronchopneumonia, so that the cardiac condition had not been diagnosed; she gave no history of cyanosis. At autopsy the heart weighed 230 grammes, measured 75 millimeters vertically and 70 transversely. Its greatest thickness was 4 centimeters. The base seemed to be twisted anteriorly and to the right; the pericardium was normal. The left ventricle made up three-fourths of the whole heart, being hypertrophied and dilated, while the right ventricle was atrophied. The pulmonary orifice was stenosed, the valve leaflets were not of the same size, and the pulmonary artery was smaller than normal. There was a large opening in the auricular septum and another in the ventricular septum, but the tricuspid valve was absent, and there was no communication between the right auricle and ventricle. The aortic orifice was dilated, its valves malformed and thickened.

The malformation was a very rare one. The right ventricle was embryonic and undeveloped, the defective septum making practically one ventricle of the two, while the interauricular septum was so rudimentary that there was a constant and complete mixture of arterial and venous blood in what was really but one auricle.

Weill, E., and Lesieur, C.: **The Exanthematic Form of Typhoid Fever in Childhood.** (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., Nos. 5 and 6.)

The chief characteristic of this form is the early appearance and generalization of the eruption, together with a great mildness or absence of digestive symptoms. In most cases neither objective nor subjective symptoms draw attention to the digestive tract, the liver is not enlarged, the spleen not at all or very slightly increased in size. There are some cases in which the digestive symptoms are more marked, but even in the severe cases they diminish or disappear when the eruption becomes generalized. The prognosis is excellent, recovery being the rule within fifteen to twenty days; the cases in which the fever remains longer than three weeks are rare. Relapses occur, but are insignificant; no complication was noted in this form of typhoid. Fifty-eight exanthematic cases were seen among 280 typhoid fever patients studied during six years. Twenty-two of the cases were mild, 15 of medium severity, 12 grave, and 9 had relapses. The exanthematic form is easily distinguishable from the ordinary variety of typhoid in children, both mild and severe. The abundance of the rose spots is a favorable prognostic sign only if it coincides with an absence or reduction of digestive disturbances. It has the same significance even in cases which appear to be grave.

Morse, J. L.: **Two Cases of Sporadic Cretinism.** (*Annals of Gynecology and Pediatrics.* Vol. xiii., No. 7.)

The two cases were both in the children of Russian parents. The first baby was seen when six months old and presented the typical picture of cretinism. No thyroid could be made out. The rectal temperature was 37.2° C. He was given one-fourth grain of the thyroid extract twice a day, which was increased to three times a day. Improvement was soon noted. When two years old his intelligence did not seem quite normal. He could not walk alone. He had four teeth and the tongue continued rather large but did not protrude. He was pale and the eyelids were puffy. The skin of the hands and feet was thick, but elsewhere it was soft. The extremities were short and thickened.

The second case was in a girl of four years. Dentition began at fifteen months. Began to sit up at twenty-one months. Walked when a little over two years of age. Child good-natured, cleanly and lively. Not sensitive to cold. When she was between two and three years of age she was treated with thyroid extract for three months. She presented many typical symptoms but not all usually recorded. Under thyroid treatment appetite failed and it was discontinued. Child disappeared from notice.

Cahall, W. C.: Gangrenous Stomatitis Treated with Antistreptococcus Serum. (*Philadelphia Medical Journal*. Vol. v., No. 7.)

A boy aged seven years during a severe attack of typhoid fever had gangrene of the left cheek. The spot was immediately cauterized with pure carbolic acid. This did not stay the disease and a curettement was done but again the gangrene appeared. Then an extensive operation was done so that the whole of the diseased cheek was removed, besides which the teeth and alveolar process were taken out. For one week the wound remained healthy and the temperature dropped to nearly normal. At the end of this time there was a recurrence of the gangrene. Under these conditions 10 c.cm. of antistreptococcus serum was injected into the right flank. Within twelve hours the gangrene, no longer spreading, began to separate, and in twelve hours had disappeared, leaving a healthy looking wound. Two days later a second injection was given. Recovery followed rapidly though the face was much disfigured. A plastic operation, however, has remedied some of the cicatrization. The literature of these cases is presented, but it shows some uncertainty as to the bacteriological factor, the streptococcus being most often found and also the diphtheria bacillus.

Ross, C. C.: A Pathognomonic Sign of the Invasion of Measles. (*Columbus Medical Journal*. Vol. xxiv., No. 2.)

After a study of fifteen cases he concludes that Koplik's sign is

1. Most valuable, rendering possible an early diagnosis, previous to the appearance of the exanthem.
2. It helps to differentiate true measles from r  theln, erythema and scarlet fever, and when measles complicate other diseases; also diseases which simulate measles in the early stages, such as la grippe and simple colds.
3. It has been found to be a reliable sign, that when once seen has never failed, and is believed to be of great value in schools, hospitals and institutions.

Collins, J., and Abrahamson, I.: The Etiology of Sydenham's Chorea. An Analysis of 100 Consecutive Cases. (*Philadelphia Medical Journal*. Vol. v., No. 8.)

The report is based on cases seen at a clinic where they were carefully examined. The youngest patient was four years, the oldest twenty-five years, an average of 10.28 years. In the first decade 26 per cent. were females and 24 per cent. males. In the second decade 31 per cent. were females and 16 per cent. males. The school period embraced 77 per cent. of

all cases and the first ten years of life has upwards of 50 per cent. The proportion of the sexes was two to three in favor of the male. As a matter of fact the disease was one and one-half times more frequent in the female than in the male sex.

Seventeen per cent. of the patients were foreign born, while 25 per cent. were of foreign extraction, the vast majority being German or Irish. Of the foreign born cases the largest number were among the Russians. Twenty-seven per cent. of the cases were Jews.

Thirty-two per cent. of the cases occurred in the summer, 31 per cent. in the spring, 28 per cent. in the winter and 9 per cent. in the autumn. The greatest number of cases occurred in July and the smallest number in October.

Of the ancestry 22 per cent. was neuropathic, 19 per cent. rheumatic and 14 per cent. choreic.

Rheumatism is regarded as very important in its relationship to chorea. It was found that "tonsillar rheumatism" had occurred in 23 cases, articular rheumatism in 16 cases and cardiac rheumatism in 32 cases. It is highly improbable that chorea is an infectious disease in the true sense of the term.

As a result of careful examination the heart was found hypertrophied and dilated, with accentuated first and second sounds in a number of cases.

Fright was regarded as a cause of chorea in 16 cases, overwork 4 cases, rheumatism 9 cases, 45 of the cases had more than one attack.

It was noted that reflex excitement, eye strain, masturbation, etc., played a very small part in any of the cases, in fact, in none of the cases was such a history or relationship traceable.

Mental apathy was recorded in 23 cases and mental excitement in 27 cases, showing that there is not infrequent mental deterioration.

Terrien, E. : Gastroenteritis in Infants; Hepatic Changes.
(*Rev. Mens. des Mal. de l'Enfance.* Vol. xviii., Nos. 1 and 2.)

In the course of a gastroenteritis the liver is increased in size, often the seat of fatty infiltration or of a connective tissue increase with dilated and thickened capillaries. While there is no absolute relationship between the length and severity of the gastroenteric affection and the liver lesion, it may be said that in the very acute form there is only capillary congestion and slight cellular change. In the sub-acute variety, thickening of the vessel walls begins, and in the prolonged cases there is a cirrhosis with marked fatty infiltration.

The lesion is really identical with that which occurs in the liver in the course of any other infectious disease, and is more marked in those cases complicated by another infection, cutaneous or bronchial.

Pomeroy, E. H.: Otitis Media in all Grave Diseases of Infancy. (*The Boston Medical and Surgical Journal*. Vol. cxi., No. 3.)

The tables of Ponfick are quoted to show the large percentage of ear disease in children. In 100 cases thus reported, the autopsies showed that the ears were diseased in the majority of the cases and the involvement had not been suspected during life.

A series of cases is reported to show the importance of a careful examination of the ears in babies. The fact should be reiterated again and again that in very many cases there is no abnormal appearance to the exterior of the tympanic membrane and yet the middle ear may contain pus and be the source of a toxemia threatening the life of the patient.

Earle, Frank B.: Rachitis. (*The Chicago Clinic*. Vol. xiii., No 4.)

The subject of rachitis is considered in all its phases, the author believing that it is the outcome of the starvation of fats. He does not believe that there is any specific treatment, but regards cod-liver oil as being almost one. Phosphorus in doses of $\frac{1}{100}$ to $\frac{1}{1000}$ of a grain is useful in some cases. The diet should receive prompt attention.

Johannessen, A.: Chronic Articular Rheumatism and Arthritis Deformans in Children. (*Norsk Magazin for Lægevidenskaben; The Medical Review*. Vol. iii., No. 18.)

CASE I.—Girl, aged seven. When three years old she lived in a damp and cold room. One year later she had severe pain and was unable to walk. Her knees and ankles became enlarged and later both hands became involved. The joints were swollen and very tender. When seven years old the trunk was ill-developed and the parts attacked were much atrophied. There was intense pain in the hip joint. There were crepitations and contractures of the joints. Tuberculosis developed, and death occurred at eight and three-quarter years. The autopsy showed the characteristic signs of a chronic adhesive arthritis.

CASE II.—Boy, when five years old, had an attack of acute articular rheumatism which involved a great many of the joints. When six years old there were pronounced cardiac lesions; all the bones and muscles were atrophied, and the joints were enormously enlarged. He became feeble and died. The autopsy showed articular lesions, thickened capsules and fluid accumulations; many of them puriform, but these were sterile. The case was one of chronic exudative rheumatic arthritis.

CASE III.—Girl of ten years, was healthy until nine years old, when there was a stiffness in the fingers and toes. This

increased, and the pain on movement was very great. The contraction of the joints was severe. Improvement followed the use of iron internally and massage and electricity.

The amount of nitrogen excreted in these cases was less than the amount ingested. The phosphorus output was also low.

Arthritis deformans is believed to be of trophic origin, and therefore different from the cases described.

Brockbank, E. M.: "Growing Pains" as a Symptom of Rheumatism. (*The British Medical Journal*. No. 2052.)

Attention is called to the subject of rheumatism in children by reports of 5 cases of mitral stenosis in which the histories obtainable were vague and referred only to growing pains in childhood. Any mention of pain in the limbs should not be slighted and the physician should examine the heart, as "growing pains" are almost invariably rheumatic.

Sheild, A. M.: A Case of Pyonephrosis with Imperforate Right Ureter—Congenital. (*The Lancet*. No. 3999.)

A male infant, seven months old, had been ill for three weeks when admitted to the hospital. He was taken with diarrhea and vomiting, but later he had constipation and the diarrhea stopped. The abdomen was distended, but the boy did not seem to be in pain. The tongue was dry but not furred; there were no teeth. There did not seem to be any pain. On the right side of the abdomen, extending from the crest of the ilium to the costal margin and about one finger's breadth across the middle line, there was a large, hard, irregularly shaped mass, firmly fixed and apparently solid. The bladder could not be thoroughly made out owing to the abdominal distention. From the left and lower portion of the tumor there were some irregularly shaped masses extending down into the pelvis. The tumor was dull all over and above the dullness merged into liver dullness. Per rectum a mass could be felt high up in front.

Three days after admission the baby had a convulsion and died. The urine had contained a trace of albumin.

At the autopsy the abdomen was found to contain some ascitic fluid. The tumor was found to be the right kidney. The right ureter ended in a fibrous band, the upper part of the ureter being greatly enlarged. It was found to coil downwards into the pelvis which it almost completely filled, pressing on the rectum and the left ureter which, with the left ureter, were also enlarged and hyperemic. The right kidney and ureter were found to be filled with thick yellow pus, the kidney being absolutely disorganized. The bladder was normal, but no opening for the right ureter could be found, though the right vesical orifice was marked by a dimple. There was no bands or matting of the

intestine. The lymph nodes and the other organs were normal. There were no signs of tubercle.

The case is of great interest. The cause of the pus was not evident and no bacteriological examination was made. If the ureter was congenitally impervious the pyogenic organisms must have been brought to the kidney by the blood stream, and cannot have entered by the usual channel, through the urethra and bladder.

Moyer, H. N.: Primary Lateral Sclerosis. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 14.)

A child, three and half years of age, had a tendency, when walking, to place one foot in front of the other, the gait being essentially spastic in character. The child would tip upward on the toes, and it was only when its attention was directed to this that it was able to bring the heels down, and then always with an effort. The peculiar gait was not associated with loss of power in the legs. The muscles were firm, but not more so than normally, as would be the case in pseudohypertrophic muscular paralysis. The bellies of the muscles were well-rounded, but not unduly large. Knee-jerks were exaggerated. There was no ankle-clonus, except that one or two slight jerks could be obtained when the tendo Achillis was put on a stretch. The upper extremities were normal. There were no eye symptoms, and no sensory disturbance anywhere. As near as could be determined, temperature, tactile and pain senses were normal. According to the history, the condition was congenital. The child developed normally during infancy, without the manifestation of any defect, and always appeared well-nourished, there being no rickets, convulsions, nor other disturbances of the general health. The parents, however, noted that the child was late in walking, and crept until it was eighteen months of age. When it began to walk this disturbance in locomotion was noticed. It was believed the disease must be in the crossed pyramidal tract, to give the peculiar symptoms present. So far as could be learned there was no incoordination. No other disease located in the spinal cord that gives the spasticity of gait, the increased reflexes, without atrophy, without alteration of sensation, with no other disturbance than that named, excepting primary disease of the crossed pyramidal tract. Many competent neurologists maintain that primary lateral sclerosis never occurs. They predicate their opinions largely on the fact that if these patients are watched long enough, they eventually develop sensory disturbance and other symptoms associated with mixed lesions of the spinal cord throughout its entire extent.

A strikingly interesting feature about this case is the disease appeared to be congenital; apparently a developmental defect. Perhaps a more strikingly interesting feature in connection with

the history of the case is that the mother has the same disease. In her case the history shows that she was normal until about two years of age. Up to this time she walked as well as do children of that age, without any apparent disturbance in gait. She then developed some obscure disorder, the exact nature of which is not known, but it is said to have been accompanied by convulsions. She recovered from this disorder, shortly after which there was a tendency to tilt on her feet. He had not seen the woman, aged thirty-eight years, but the physician who examined her said that she presented the same changes noted in the child. Her trouble had not advanced since infancy.

The reporter believes that these two cases establish a family type of disease, agreeing with Hirt.

Trevelyan, E. F.: On Diphtherial Stomatitis. (*The British Medical Journal.* No. 2050.)

By diphtherial stomatitis is understood a stomatitis produced by the diphtheria bacillus associated or not with other microbes. The designation of diphtherial stomatitis is restricted to the characteristic lesion situated on the inner side of the lips or cheeks, the floor of the mouth, tongue or hard palate. The absence of general symptoms cannot be looked upon as excluding diphtheria.

A girl of fifteen was ill with what was thought to be ulcerative stomatitis. Cultures showed diphtheria bacilli. The patches in the mouth remained in the same state for about a week. There were never any general symptoms, and no albumin appeared in the urine. A handkerchief that the child used showed the diphtheria bacillus after seven weeks.

Primary genuine diphtherial stomatitis is undoubtedly rare. References are made to the literature of the subject, and the diagnosis is considered as important from a bacteriological standpoint. Membranous stomatitis may be due to several different microbes, but the case reported showed the true diphtheria.

Blumenreich, R.: Thymus Dulness. (*Virchow's Archiv.* Vol. clx., No. 1.)

Examinations were made on more than 100 children, some including both *ante-mortem* and *post-mortem* percussion of the thymus gland. It was found that the differences are so slightly marked that the *post-mortem* results are absolutely reliable. The thymus gives rise to an area of dulness which has an irregularly triangular outline, the base made by the line connecting the two sternoclavicular articulations, the rounded apex situated at the level of the second rib or slightly below it, and the sides a little beyond the sternal edges. The larger half of the triangle and of the dulness usually falls to the left side. When the dulness

exceeds the above limits by 1 cm. or more, and obscures the loud pulmonary resonance between the upper line of cardiac dulness and the lower lateral limit of thymus dulness, an enlargement of the thymus gland is indicated. The thymus dulness is present until the end of the fifth year, and after that age it is less constant.

Swollen lymph nodes in the anterior mediastinum do not cause dulness, but cheesy lymph nodes do. In cases of undoubted tuberculosis, dulness in the region of the manubrium sterni and the upper part of the corpus sterni, occupying about the area of thymus dulness, is not due to the thymus alone, but to cheesy mediastinal lymph nodes as well.

Broadbent, Wm.: On Cases of Chorea with Heart Murmurs. (*The Polyclinic.* Vol. ii., No. 4.)

Two sisters, aged fourteen and nineteen years, were shown at the clinic. The younger one was suffering from an acute attack of chorea which affected the speech in addition to the extremities. There was a distinct mitral systolic murmur and a pulmonary hemic murmur. There had been probably a rheumatic endocarditis. The older sister had an attack of chorea when nine years old. She was in the hospital for four months for chorea and rheumatic fever. The heart showed hypertrophy with a mitral lesion, showing stenosis and regurgitation.

Alexandrow: Hysterical Joint Affections in Children. (*Archiv für Kinderheilkunde.* Band xxviii., Heft 5 and 6.)

Hysterical joint affections are rare in childhood and should be compared with joint diseases.

A girl eleven years of age was admitted to the hospital on account of pain in the left knee joint that had persisted for two months. She never had had a similar affection. Careful examination did not show any abnormal condition in any of the organs. The outline and mobility of the affected knee also were entirely normal, although pressure on the joint from behind and from inside caused a slight pain. There was no anesthesia of the skin, or of the mucous membrane of the fauces. The girl's spirits were very much depressed. When asked to walk across the room, she did so but complained of severe pain in the joint. The application of the induced current to the affected joint with the suggestion of a speedy cure, caused disappearance of the pain in a few days. The diagnosis in this case was made more difficult by the absence of other symptoms of hysteria. Tubercular affection of the joint could be excluded by the absence of any thickening in the skin over the joint.

Alexejew also reported two cases he had observed at the hospital. A girl thirteen years of age was admitted with the history of severe pains in both ankle joints lasting two months

and making locomotion impossible. Nothing abnormal in the joint could be detected. There was absence of the faucial reflex, also anesthesia of the skin over the affected joints and over the heel. One application of the faradic current with suggestion of a cure removed all pain and inability to walk. A girl seven years of age, had a contracture affecting the right thumb. Extension of the thumb was impossible on account of the severe pain, but it could be accomplished without difficulty when the child's attention was diverted. The contracture would disappear for a time spontaneously.

Northrup, W. P.: Typhoid Fever in an Infant Nine Months Old; Recovery. (*The Medical Age*. Vol. xviii., No. 9.)

After repeating his views of the infrequency of typhoid fever in children under two years of age, he reports a case of undoubted typhoid fever in a female infant of nine months. The baby presented an enlarged spleen and liver, characteristic rose spots and diarrhea. The temperature reached 103° F. for the first nine days; the fever lasted about twenty-four days. The Widal test was not shown until after the baby had been in the hospital for twelve days, and two examinations had been negative.

1. The diagnosis in 6 cases of typhoid fever in children under two years of age was easily made on signs and symptoms characteristic of typhoid in adults. 2. The cases were all intimately associated with others in the family. 3. Skepticism should be encouraged concerning any diagnosis of typhoid fever in an infant (under two years of life) not intimately associated with other cases. 4. The most common mistakes arise from misnaming as typhoid the following diseases: grippe, subacute catarrhal enteritis, central pneumonia, and malaria.

Porter, J. L.: A Case of Hysterical Hip Joint. (*The Journal of the American Medical Association*. (Vol. xxxiv., No. 20.)

A girl of eleven years old had the usual diseases of childhood with scarlet fever when eight years old. Following this she had severe headaches, pain in the back and gastric crises at quite regular intervals. These attacks were in the nature of nervous storms. For six months before she was seen she had complained of pain in the right hip, with the development of a slight limp. She had never menstruated.

The family history was good, except for nervousness and a tendency to headaches.

The girl was well developed and slightly anemic. The affected hip and leg seemed perfectly normal, and there was no swelling. The length of the two legs was the same. The right

thigh was not atrophied, but was really a half inch larger than the left. There was no limit to motion. No acute symptoms followed forcible manipulation. It was difficult to get the anesthetic areas. The girl was seen when asleep, and the flexion and extension of the limb were complete. Rotation was free. She was given a tonic of nux vomica and recovered in a short time.

The case is carefully differentiated from tuberculous hip-joint disease.

HYGIENE AND THERAPEUTICS.

Spratling, W. P.: *The Treatment of Epilepsy in its Incipency.* (*The American Medical Quarterly.* Vol. i., No. 4.)

In the child, epilepsy is especially liable to develop: 1 during early infancy and dentition; 2, during the period covered by the seventh and eighth years; 3, during the marked transitional period of puberty.

There should be an early recognition and treatment of the disease. The home treatment is always difficult. Parental sympathy nearly always steps in and defeats the objects that the physician is trying to attain. It has been estimated that not more than from 1 to 2 per cent. of persons suffering from genuine epilepsy recover under home treatment.

At the Craig Colony for epileptics, particular care is taken to give food that is readily absorbed and assimilated. Meat is given but once a day, at the noon hour, but only in a small quantity. No fried food is allowed and no pastry, cakes nor pies. Cereals, bread stuffs, milk, fruit, eggs and butter form a large part of the dietary. There should be systematic and regular exercise for all epileptics. Of the newer drugs the fluid extract of horse nettle berries has had a good effect on the number of paroxysms without impairing digestion.

When an arm or leg is weak there should be regular exercise or work for the weakened part so that the brain centres will be built up.

Palmer, H. B.: *How Much May we Expect from the Treatment of Cretinism?* (*Journal of Medicine and Science.* Vol. vi., No. 4.)

After a study of some cases that came under his observation and a review of Peterson's writings, he expresses his belief in the efficacy of thyroid treatment as follows: Although sufficient data to justify positive assertions are lacking, it seems probable that if the treatment of sporadic cretinism were begun at the outset of the disease and before the development of the child

was seriously interfered with, that it would develop normally and be free from myxedematous symptoms so long as the thyroid treatment was continued.

Buist, R. C. and McGillivray, A. : Ophthalmoblennorrhea (Purulent Ophthalmia) Neonatorum. (*The Scottish Medical and Surgical Journal.* Vol. vi., No. 2.)

The first author writes from the standpoint of the obstetrician and the second from that of the ophthalmologist. The former urges that the scrubbing of the vulva should never be omitted. A detergent douche may be given. When the baby is born clean absorbent cotton is to be used to wipe the eyes. The physiological salt solution or boric lotions are useful. Corrosive sublimate solutions, if used, should be weak. If the mother has a gonorrhea use Credé's method of dropping the eyes with a 2 per cent. solution of nitrate of silver.

The second writer quotes largely from various authorities. Nitrate of silver in the 2 per cent. solution is the medication that is depended upon. The physiological salt solution is advised for cleansing and washing. States should require compulsory notification of all cases of blennorrhea neonatorum.

Callan, P. A. : The Influence of School Life on Vision. (*The New York Medical Journal.* Vol. lxxi., No. 3.)

An examination of the eyes of 500 colored children disclosed 3 per cent. of near-sightedness in the older children. Agnew reported 50 per cent. of myopia in college classes in the children of German and Russo-Polish descent. The scholars in most schools have too much to do without enough recesses. There is an increase in myopia among all classes.

Nicloux: On the Passage of Alcohol, Ingested by the Mother, to the Fetus. (*Gazette des Mal. Infantiles.* Vol. ii., No. 1.)

Experiments upon pregnant guinea-pigs, to whom alcohol was given by means of the stomach tubes, proved that the alcohol appeared both in the blood of the mother and of the fetus.

Parturient women were given a dose corresponding to one-half of a cubic centimeter of absolute alcohol to the kilogramme of body weight, one hour before the birth of the child. Examination of the blood obtained from the placental end of the cord showed that alcohol was present.

Experiments made with the milk of dogs proved that alcohol appears rapidly after its ingestion, being found in fifteen minutes, and reaching its height in three-quarters to one hour. With human milk the results were similar.

Love, I. N.: Thyroid Extract in Juvenile Obesity. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 16.)

A boy of eight years weighed 131 pounds. He was fairly bright, intelligent and cheerful. He was constipated. He was given purgatives, special diet and $2\frac{1}{2}$ grains of thyroid extract three times a day. The quantity of the thyroid was gradually increased until he took 5 grains four times a day. Within three months he had lost 10 pounds in weight. After sixteen months of treatment his weight is 106 pounds. The chief feature of his case is the muscular development and increased activity. The addition of 1-150-1-50 of a grain of strychnin to the thyroid extract lessens the depression and unpleasant effects of the latter drug.

Berger, Franz: The Frequency of Caries of the Teeth in Children, and its Prevention. (*Archiv für Kinderheilkunde.* Band xxviii., Heft 5 and 6.)

Berger draws attention to the importance of caries not only from the standpoint of the dentist, but also from that of the physician. A healthy condition of the teeth is necessary to the proper nutrition of the entire organism. Cavities in teeth have been found to contain abundant infectious material, while Korner proved experimentally and statistically that the bacillus of tuberculosis gains entrance into the lymph spaces by way of carious teeth and causes swelling of the submaxillary lymphatic nodes. Caries is one of the most common diseases of the teeth. In Switzerland 94.2 per cent. of the teeth of children between seven to fourteen years were found carious. In Sweden the frequency of caries among school children was found to be 97.27 per cent., but there has been a great reduction in this number since the introduction of school dentists. Caries has also been found to be more frequent in countries the soil of which is poor in lime.

Coarser food acts as a prophylactic of caries to a certain extent, as it requires a greater effort at mastication, thereby inducing a more liberal supply of blood to the bone and tissues surrounding the teeth. Caries is probably caused by a destruction of the enamel of the teeth through the formation of lactic acid from fermentation of carbohydrates in the mouth. These spots, denuded of the protecting enamel, offer an open door to the entrance of bacteria to the dentine and the pulp of the teeth.

Prophylaxis consists first in the proper feeding of the infant to prevent rickets or any of the diseases of nutrition, which have all been shown to impair the strength of the teeth. Frequent cleansing of the oral cavity and of the teeth with a weak solution of sodium bicarbonate should be practiced from infancy. Next in importance is the instruction of the child in the proper

mastication of his food and in the use of the toothbrush, the toothpick and the dental silk. Carious first teeth need conservative treatment, not removal, as they protect the permanent teeth.

Children ought to be instructed in the care and preservation of their teeth by their teachers. During second dentition care should be taken not to leave the milk teeth for too long a time as this will cause irregular development of the permanent teeth, thus making them liable to the development of caries. Dentists should hold appointments on the regular staff of hospitals for children, and of all institutions for children. Germany has dentists regularly appointed to look after the teeth of the pupils in the common schools, who also treat free the children of poor parents.

Railton, T. C.: Practice and Precept in Children's Diseases. (*The Medical Chronicle*. Third Series. Vol. iii., No. 1.)

The author deals with the subject of infant mortality in the city of Manchester, England, and the influences that occasion the death rate. The deaths from diarrhea in the year were 1000 under five years of age. All except 28 of the deaths were in children under two years. Over-crowding and dirt are not regarded as the only causes of infant mortality, as the Jewish population did not suffer in spite of their filthy surroundings. The Jewish children were breast-fed and the other children were given proprietary foods. The Jewish children were free from rickets while the bottle children had the disease.

Seventy-eight deaths were registered as due to dentition, but were due to improper food. The artificial foods are unfitted for digestion and cause convulsions, atrophy, dentition and enteritis. The usual cause of the irritation is indigestible food.

Besides the dangers from artificial foods there is danger from poor milk, as in addition to the acute derangement of digestion there is the risk of tuberculosis.

Pasteurizing is regarded as a suitable means of preventing the development of bacteria in milk, and the process is one that can be easily carried out. The proper milk supply is the problem in the feeding of infants, as the proprietary infant foods are of the smallest value to the healthy child. All medical men should take an active and public part in the endeavor to diminish the mortality among children.

Fothergill, W. E., and Penny, John: Salol and Petroleum in the Treatment of Infantile Diarrhea. (*The Medical Chronicle*. Third Series. Vol. iii., No. 1.)

The food was not changed when the patient was first seen. If there was some very decided error in diet it was corrected, but no positive rules were given.

Seventy-one cases were observed. The ages of the children varied from two months to two years. Eight of the seventy-

one children were fed entirely on the breast and of these none died. Of the sixty-three bottle-fed infants three died.

Salol alone was employed in 36 cases, 4 of them were breast-fed. The drug was given in the form of a powder; $\frac{1}{2}$ a grain every three hours was the minimum dose, three grains every four hours was the maximum.

Two children died. In 6 cases the results were moderately good, but recovery was slow and had to be aided by the use of bismuth and opium. Twenty-eight children recovered on the use of salol alone. Improvement was usually rapid, but it was observed that the vomiting did not always stop with the diarrhea. It is probable that salol in a powder is an irritant to the throat, and while the drug is a valuable intestinal antiseptic it should be mixed with some demulcent and given not oftener than twice daily.

Petroleum was used in 34 cases. The preparation was an emulsion containing 33 per cent. of petroleum. The dose varied from 3 drops thrice daily up to 1 drachm every four hours. One of the children died. In 2 cases the results were unsatisfactory and salol was used at the end of a week. In 31 cases recovery followed the use of the emulsion, the vomiting ceasing before the diarrhea was checked.

The treatment favored recovery from the bronchial catarrh which accompanied the diarrhea; the salol did not relieve this bronchitis.

Petroleum probably exerts a good influence on mucous membranes other than those of the alimentary canal.

These observations show the value of intestinal antiseptics, and that opium and astringents are not required in infantile diarrhea.

Westbrook, F. F. : The Bacteriological Diagnosis of Diphtheria in Minnesota. (*The St. Paul Medical Journal.* Vol. ii., No. 4.)

Particular attention has been paid to the different types of bacilli, and as a routine measure a great many cases have been studied to define, if possible, the dividing line between "typical" and "atypical" forms. The typical form of bacilli when found in seemingly healthy throats shows an exposure to clinical diphtheria.

Of 87 cases of diphtheria, half the number were released from quarantine in three weeks or less, while one quarter of the cases were held in quarantine more than four weeks. In 12 cases the bacilli persisted after the thirty-fifth day of the diphtheria.

As the nose was the most frequent site of the persistence of the bacilli, it was sprayed with an alkaline antiseptic solution, followed by a 0.5 per cent. formalin solution, thrice daily.

The average length of time taken to eradicate the bacillus

of diphtheria and all suspicious forms from both nose and throat in 178 children was fourteen days; 58 cases yielded to treatment in the first week.

The presence of a pure culture and the inoculation of guinea pigs are the only means of determining the virulence of bacilli found in apparently healthy throats. This latter, however, is not ideal, as many of the bacilli isolated from healthy people are pathogenic for guinea pigs. Conversely, a diphtheria bacillus (which has no pathogenesis for an animal) obtained from the throat of a convalescent may be harmful to some other human being. Further reports on the bacteriology of diphtheria are promised.

Campbell, G. G.: A Simple and Inexpensive Method of Obtaining and Pasteurizing Cream for the Preparation of Infant Food. (*The Montreal Medical Journal.* Vol. xxix., No. 4.)

There are two essentials in the use of cow's milk for infants' food: Namely cream of fairly constant strength and pasteurization. To pasteurize the cream it is put in a bottle fitted with a perforated cork so that a chemical thermometer may be placed with a half inch of the bottom of the bottle. The bottle is placed in pot containing a couple of inches of warm water and allowed to heat on the stove. The thermometer is watched so that it does not range over 160° to 165° F. The pot is placed at the back of the stove and allowed to cool off for twenty minutes. At the end of this time the bottle is removed from the pot and the cork is replaced with a rolled up plug of absorbent cotton. Cream prepared in this way will keep sweet for twenty-four hours without needing ice.

Coggeshall, H.: The Treatment of Whooping-Cough. (*Medical News.* Vol. lxxvi., No. 13.)

Some children with whooping-cough seem to have attacks of cough due to the condition of the nasal mucous membrane. Cases have been benefited by the use of the galvano-cautery and others by the insufflation of various powders. The treatment suggested is the use of cocain spray to the nasal mucous membrane, followed by an application of the same solution, after which a 2 or 4 per cent. solution of nitrate of silver is applied to the nose and nasopharynx. The membrane is then washed with a mild alkaline and antiseptic spray. The supra-renal extract may be tried for local application to the nose.

A few cases of pertussis treated by the cocain and silver solutions seem to have been given decided relief with an abatement in the frequency of the paroxysms after the first application and a stoppage of the cough after the second or third treatment.

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Original Communications.

ENTERIC FEVER IN CHILDHOOD.*

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Typhoid fever as met with in children under fifteen years of age presents some characteristics which distinguish it from the disease as met with in the adult. These points of difference have already been referred to by several members of the American Pediatric Society.

During the past five years several outbreaks of this disease have occurred in Montreal, due in two instances at least, to the infection being conveyed in milk. Quite a number of children suffered, but a comparison between the numbers of children and of adults who were attacked I am unable to make, owing to defective registration of all the cases of the disease which occurred.

For this period I have the notes of twenty-nine cases of typhoid fever, the greater number of which occurred in my own private practice, but which include a few cases seen in consultation with other physicians. I have also examined the records of forty-eight cases treated in the Montreal General Hospital during this period, many of which occurred in my own wards; others I report by the courtesy of my *confrères*; also the records of twenty-three cases admitted into the wards of the Royal Victoria Hospital, the notes of which were kindly placed at my disposal by the attending physicians; making in all a total of one hundred consecutive cases occurring in children under fifteen years of age.

I have thought that a brief *résumé* of the characteristics of the disease as manifested in these cases, and of the relative frequency of the various symptoms and of the results obtained by

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

treatment, might present some points of interest to the Society. Of these one hundred children

1	was	under	the	age	of	1	year	7	were	under	the	age	of	9	years
3	were	under	the	age	of	2	years	10	"	"	"	"	"	10	"
3	"	"	"	"	"	3	"	9	"	"	"	"	"	11	"
5	"	"	"	"	"	4	"	9	"	"	"	"	"	12	"
5	"	"	"	"	"	5	"	8	"	"	"	"	"	13	"
8	"	"	"	"	"	6	"	8	"	"	"	"	"	14	"
6	"	"	"	"	"	7	"	9	"	"	"	"	"	15	"
9	"	"	"	"	"	8	"								

Four infants were thus under the age of two years, thirteen between two and five years, forty between five and ten years, and forty-three between ten and fifteen years.

Of the four cases under the age of two years, one was received into the Montreal General Hospital under the charge of Dr. Finley; two occurred in private practice; and one was seen in consultation.

In the case of the one received into the hospital the diagnosis was at first doubtful. The history was that of an infant of thirteen months, apparently healthy, with the exception of a perforated drum membrane, the result of an attack of scarlet fever seven months previously.* A discharge from this ear persisted. Five days before its entrance into the hospital diarrhea set in, the infant became listless, fretful and drowsy, and food was refused. Two days afterwards it was seen by a medical man and recommended for admission into the wards. Its condition at the time resembled that of a child suffering from incipient meningitis. It was restless, turning from side to side, and moaning; its face had a cyanotic hue; the abdomen was slightly distended; no rose spots were visible; the spleen was distinctly palpable; the lower edge of the liver could be felt; a few moist râles were heard at the base of both lungs; the pulse was rapid and very weak; the heart was normal; loose fecal movements occurred four or five times in the twenty-four hours. The infant died in the morning of the fifth day after its admission. The Widal reaction was absent. The *post-mortem* examination revealed typhoidal lesions and the presence of typhoid bacilli in the intestines.

Two cases occurred during the spring of 1897 in my own practice. In both cases other children in the family were at the time suffering from well-marked symptoms of typhoid fever. Infection in these cases had been conveyed through the milk.

They did not run a severe course. The temperature ranged between 102° F. and 104° F. for the first week. In the second week between 100° F. and 102° F., but subsided to normal before the close of the third week. Rose spots were distinct in one, absent in the other. In both, the spleen was enlarged; in both, loose movements of the bowels were present, but the diarrhea was not sufficient to call for special medication. The only treatment employed was tepid baths at a temperature of 95° F. reduced to 90° F.

In the fourth case I was called to see an infant of eighteen months suffering from cerebral symptoms which the attending physician regarded as probably due to tubercular infection. At the consultation, a few rose-colored spots were discovered on the slightly distended abdomen, the spleen was found to be enlarged, and three or four loose movements of the bowels had occurred each day since the onset of the sickness. A probable diagnosis of typhoid fever was made, which I was afterwards informed had proved correct. After an illness of sixteen days an uninterrupted convalescence set in.

Typhoid fever in the infant is generally regarded as a comparatively rare affection. Marfan states (*Traité des Maladies de l'Enfance*, Grancher, Paris. 1897. Vol. i., p. 332), that it is remarkable for the vague character of the clinical picture and its difficulty of diagnosis. The more exact methods recently placed at our disposal for the determination of the presence of the typhoid bacillus will remove the difficulty in diagnosis; and all cases of continued, perhaps it would be better to say, remittent fever in the infant, unaccompanied by any distinct localization of disease, should be carefully investigated. My personal belief is that instances of this infection will be found more numerous than the facts elicited in previous discussions on the subject in our Society would lead us to think.

The statistics of typhoid fever in infancy are still too meagre to enable us to draw any broad conclusions. Thus far only the more severe cases have been recognized. With the more accurate means of diagnosis now at our disposal, the typhoid fever of infancy may be shown to run a comparatively mild course.

After a careful investigation of the records of those cases occurring after two years of age, I do not feel inclined to draw a dividing line at any special age. While in patients over fifteen years, the disease generally assumes the characteristics met with

in the adult, in my experience up to the age of fifteen it maintains the type met with in childhood; the symptoms are milder, and the duration in the great majority of cases is under three weeks.

In thirteen of my cases, the *onset* was sudden. Children apparently in good health were suddenly taken ill, so that within a few hours symptoms of disease were well-marked. In every case in which I have noted this fact, the sudden onset was associated with the disturbance of the gastro-intestinal tract, attributed at the time to an indiscretion in diet.

Of the well-recognized *initial symptoms*, headache was observed as present in 68 cases, (or 83 per cent. of the children over six years of age.) It is noted as severe in 16, (or nearly 20 per cent.) Vertigo is noted in 19 cases (22 per cent. of those over six.) Anorexia is noted in 49 cases. While no distinct chill is reported, in 12 cases the patients complained of a feeling of chilliness. In 18 cases vomiting is said to have taken place, but did not occur after the first day. Movements of the bowels, looser and more frequent than normal, were noted in 36 cases. Of these, 10 cases were distinctly diarrheal in character. Six of these were children in whom the sudden onset was attributed to indiscretions in diet. In only 4 cases did the diarrhea persist and require special medication. Constipation was present in a more or less pronounced degree in 59 cases, requiring rectal injections. Slight fulness of the abdominal parieties was noted at the onset in 48 cases. In 29, it is distinctly stated that no distension was present. Abdominal pain was noted as a complaint in 33 cases, while pain on pressure, a dubious symptom always in young children, is only stated to have been present in 15. Epistaxis occurred in 23 cases. Tonsillitis was present in 6 cases. A slight convulsion was stated by the mother to have occurred at the onset of the attack in an infant of two years and eight months, but as this was one of the instances in which, apparently, the sudden onset was precipitated by injudicious feeding, it has probably little value as an indication of typhoid fever infection. The personal equation enters so largely into any estimate of the value of these initial symptoms that it is impossible for us to draw conclusions from them as to the prognosis of the attack.

Investigating the symptoms occurring during the course of the disease, we observe that the temperature range presents

some peculiarities worthy of notice. A resemblance to Wunderlich's ascent at the onset was observed in only 8 out of the 100 cases. This small number is doubtless due to the fact that the temperature in hospital cases, and, indeed, in private practice, is rarely accurately recorded before the fourth or fifth day of the disease. Three of these 8 were cases in which the affection appears to have been contracted in the hospital, and as the temperature records were systematically registered, in them the step-like ascent is distinctly noticeable, in 1 for three, and in 2 for four days. After the first week, in the large majority of cases, the temperature became in a marked degree remittent. In those who were admitted into the wards towards the close of the first, or during the second, week of the attack, the temperature was remittent from the outset; a fall of from two to four degrees being recorded in the morning, as compared with the record of the previous evening. During the third week, these extreme ranges (in 62 out of the 87 charts at my disposal) came to an end, either gradually subsiding or more or less abruptly ceasing; so that at the end of the twenty-first day there was an evening temperature of not higher than 99 degrees. More frequently in the child than in the adult do we find the temperature at the close of this period remaining persistently subnormal for some days. In five cases it is noted that the rectal temperature remained between 96° F. and 98° F. for from three to four days. In one case for four days in succession, it recorded 95.5° F. as a morning temperature.

Of the 87 temperature charts which I have been able to compare, in 19 the temperature on several occasions reached or exceeded 105 degrees, and the fever persisted for four weeks or more. In 37 the temperature on several occasions reached 104 degrees, and the duration of the fever was about three weeks. In 15 cases the duration of the fever was between two and three weeks, but the highest range of temperature was 103° F. In 16 cases, while the temperature may have occasionally reached a high point, the duration of fever was under two weeks. Of the remaining 13 cases, the temperature charts are either wanting or too defective to make use of them, but of these, 4 I have characterized as severe in my notes taken at the time, and 9 as moderately severe. Taking the temperature curve, therefore, as some indication of the severity of the disease, I may refer to 23 of my 100 cases as being severe, 46 as moderately severe, and 31 as running a moderately mild course.

The pulse in the great number of cases was only moderately quickened, but in the few instances to which I will refer later on, it was rapid and dicrotic.

The spleen is noted as palpable in 70 cases. In 8 additional instances, the splenic dulness was noted as increased under careful percussion. Tenderness on pressure over the spleen is noted in 18 cases. Rose spots were noted in 55 cases. In three only are they said to have been numerous. A diffuse erythema of the neck and chest is noted to have occurred during the first week in 2 cases.

In 8 cases during the course of the illness the abdomen is stated to have become distinctly distended. In 5 of these, diarrhea was present. In two cases rigidity and tenderness existed, which subsided on the application of an ice bag. In 4 cases, 2 of them under ten years of age, traces of blood were observed in the stools between the eighteenth and the twenty-third days of the disease, but no severe hemorrhage occurred.

In 19 cases sonorous and sibilant râles are noted to have been present at the bases of both lungs. In 1 case a child of seven years is stated to have attended the out-patient department of the hospital for six days with symptoms indicative of an attack of bronchopneumonia. The physical signs noted were an impairment of resonance at both bases with numerous sub-mucous râles; sibilant and sonorous râles over the upper portion of both lungs; and distant tubular breathing at the lower angle of the right scapula; temperature 103°; pulse 112; respiration 44. After admission into the hospital the spleen was found to be enlarged, and two days later, an eruption of rose spots occurred on the abdomen; the temperature assumed a remittent character, and the lungs cleared. Complete defervescence took place on the sixteenth day of the fever, followed by a relapse on the twenty-third day of the attack, lasting eight days. The temperature then fell to normal and convalescence ensued.

At the onset of almost all these cases, and throughout the attack in cases of moderate severity running a regular course, the pulse remains slow even under the stimulation of a high temperature, indicating possibly some action on the pneumogastric centre by the toxins of the typhoid bacillus; in severe cases, however, this action would appear to be more than counteracted by the effect of the toxin on the muscular wall of the heart, as indicated by the frequent development in children

of a soft, systolic murmur heard frequently both at base and apex. Its presence is noted during the second or third week in twenty-two of my cases. At the same time in three cases murmurs evidently more organic in character were also reported.

A mild nocturnal delirium is noted as present in eighteen cases. In only one instance was the delirium noisy. Restlessness in sleep, or sleeplessness, occurring during the second or third week is noted in 15 cases. In 12 cases drowsiness was a marked feature of the first week; and in 4 cases a condition of semi-stupor existed during the first few days after entrance into the hospital. In 1 case, with a dicrotic pulse there was muttering delirium, picking at the bed clothes, and subsultus, with a temperature of 105.5°. These symptoms fortunately passed off under free stimulation, continuous spongings, and the application of ice over the precordium. In a second case, in addition to the condition of stupor, a coarse tremor of the fingers was noted, and abolished reflexes. When convalescence set in a paretic condition of the muscles of the leg with dragging of the toes was noted. I have no record of the occurrence of temporary aphasia, instances of which have been reported by other writers, but Dr. Finley told me that in one instance this condition had been present for two weeks, but passed off completely during convalescence. A paretic condition of the bladder, requiring the use of the catheter, was noted in three cases during the second and third week of the attack. One instance of tenderness of the toes was recorded.

In only five instances is it stated that a trace of albumin was present in the urine; in two of these a few epithelial casts were also found.

Otitis occurred in four cases.

A benign non-suppurative periostitis is noted in one case.

A tendency to subsequent furunculosis was noted in two instances.

Relapses have been noted in 15 of the cases. In 1 case there were two distinct exacerbations. Relapses followed after both severe and mild attacks. It is stated by Marfan (*Loc. Cit.*) that they may be foretold by the persistence of the enlargement of the spleen, by the temperature failing to assume a normal and regular course, by the failure of the tongue to clean, and by the facial expression. I have failed to verify any of these statements, beyond noting that in 5 of the cases, the exacerbation

occurred in the fourth week after a severe attack before the temperature had quite assumed a normal range.

In corroboration of the value of the Widal reaction in diagnosis, I would state that in 43 of my cases it was carefully sought for with the following results:

3	gave it on the	4th	day	1	gave it on the	14th	day
2	" " " "	5th	"	1	" " " "	15th	"
2	" " " "	6th	"	2	" " " "	16th	"
3	" " " "	7th	"	2	" " " "	17th	"
2	" " " "	8th	"	3	" " " "	18th	"
1	" " " "	9th	"	1	" " " "	19th	"
3	" " " "	10th	"	1	" " " "	20th	"
5	" " " "	11th	"	1	" " " "	21st	"
4	" " " "	12th	"	2	" " " "	22nd	"
3	" " " "	13th	"	1	" " " "	28th	"

In 3 cases the reaction failed.

We may simplify these figures by stating that 12 gave the reaction on or before the eighth day; 13 gave the reaction after the eighth but before the twelfth; 12 after the twelfth but before the eighteenth; and 6 after the eighteenth and before the twenty-eighth.

The only death which occurred in this series of 100 cases was that of the infant thirteen months old which was received into the hospital in a condition of profound depression of the circulatory and nervous system, and died on the fifth day after admission.

The treatment of the majority of these cases was by the regular systematic employment of cool or cold baths. In 53 cases the bath was employed whenever the temperature rose above 102.4° F. In 19 instances the first few baths were given at 90° F. reduced to 85° F. and afterwards continued at 85° F. reduced to 75° F. Their duration was ten minutes; and they were repeated every three hours if the temperature remained high. In 25 instances the first baths were given at 85° reduced to 80° and afterwards continued at 80°, reduced to 75°. The duration of the bath was ten minutes; and it was repeated if necessary every three hours.

In nine instances after a few baths at slightly higher temperatures, the bath was given at 75° F. reduced to 68°.

In thirty instances systematic spongings with water at a temperature of 65° to 70° F. were given every two or three

hours associated with the employment of ice applied either to the head or in four instances to the precordium.

In three instances a cold pack was employed.

In fourteen instances the treatment was merely symptomatic.

Stimulants in the form of either whisky or brandy were employed cautiously in some instances, but freely in a few cases, regarding them not only as a stimulant, but as a rapidly and easily appropriated food. Strychnin was the chief cardiac stimulant employed. Milk formed the chief dietary, but a careful watch was kept over the stools that the quantity given should not be in excess of the digestive powers of the child. Frequently it was more or less modified by the addition of some diluent.

In regard to the use of cold baths and the Brand method in the treatment of typhoid fever in children, perhaps a short expression of my opinion may not be out of place. I am convinced of the great value of the regular and systematic employment of the cool or cold bath in the treatment of this affection. In my opinion it should be employed regularly without too rigid adherence to Brand's rule of only using it when the fever reaches 102.4° F., and a great fall in temperature as the result of its employment is not to be desired. Rapid falls, as we all know, are almost invariably followed by an equally rapid rise. As a recent writer has said: baths are to be employed for their action not on the temperature, but on the nervous system and through it on the heart, respiration, and secretions, especially the secretion from the kidneys. The nervous system of the child responds more quickly and energetically to the cool bath than does that of the adult, and the amount of response has to some extent an inverse proportion to the age. It is therefore unnecessary and undesirable that as low temperature should be employed in the case of a young child as in the case of an adult. The duration of the bath, the temperature of the water, and the frequency with which the baths are employed should be modified to suit each case in the same way as we modify the dosage of other therapeutic remedies. All sudden and severe shock should be avoided. I believe it to be a great shock to a young child to plunge it at the outset into a bath of 68° or even 75° F.; while a bath of 90° F. cooled to 85° and repeated regularly for the first few days of the attack gives rise to neither resistance, nor signs of shock or collapse on the part of the child. Later on in the disease lower temperatures may be employed if found

necessary. Even after the pyrexia falls below 102° F., I believe that the regular use of the cool bath once or twice a day strengthens the heart action and tends to a more rapid convalescence.

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DISCUSSION.

DR. COTTON.—I should like to ask Dr. Blackader if in these cases he administered laxatives or whether after having secured evacuation of the bowels by enemata, he noticed a subsidence of the temperature.

DR. BLACKADER.—The ordinary glycerin and water enema is almost daily employed in the hospital, rarely soapsuds, and any laxative influence is secured with small doses of calomel. I did not notice any special subsidence of the temperature.

DR. COTTON.—In 1885 a hundred tabulated cases were reported by me and reduced to percentages after the manner presented by Dr. Blackader. In these cases there was a very marked difference in the temperature ranges between the constipated cases and the cases with relaxed bowel. In that tabulation it was easy to see that after a movement of the bowels from enemata a decided fall in temperature occurred. From that time it has always been a matter of interest to me to note the effect of free movement of the bowels as compared with constipation. The paper deserves commendation for the carefulness in detail. I feel like corroborating, as the result of my own observation, the statement that in young children and older infants, there is a tendency to subnormal temperature during convalescence and during the last week of the fever, when we have those oscillations, the temperature often goes below normal to rise again later.

DR. ADAMS.—That infants have typhoid fever I do not believe any of us will deny at the present time. I have seen infants under one year of age with typical typhoid fever; I have seen them at the ages stated. The point I wish particularly to discuss is first the fever itself, that is the elevation of temperature. In infants the rectal temperature is certainly the only correct temperature; and it is better to rely upon this method in all children. The temperature taken under the tongue in a child under twelve years of age does not register the true temperature of the child. So far as the nervous disturbances are concerned, each individual is to be studied separately. Different individuals, even in the same family, will present various manifestations. You cannot judge how a child is going to act with a given temperature. I have seen a rectal temperature not exceeding 102° F., accompanied by the most severe nervous

manifestations, and at the same time I have seen a temperature running six weeks at a high range with almost no nervous manifestations whatever. I have already reported to this Society cases of severe post-typhoid mental conditions, insanity, in children, and I have had two cases since the report was made of marked insanity following typhoid fever.

The method pursued by Dr. Blackader in the use of the bath seems to be the most rational one to employ, that is he judges his case, and employs hydrotherapy as indicated. We should not put every child in a bath. I put a child in a bath if necessary, not so much, as has been said, to reduce the temperature as to allay nervous irritability and improve the nervous condition. I think a great deal of harm may be done by placing an infant or child in a bath at too low a low temperature, some 20 or 30° lower than the body heat. Better results can be obtained with a temperature 15 or 20° less than the fever, and not so great a shock given as to require free alcoholic stimulation. Next comes the food. If a child will not take the food ordered for it, that is, usually milk or broth, ice cream may be given. Ice cream is not the ideal diet for children, but in a case under my care in which something had to be done, the ice cream was tried and the child recovered. The child had a rectal temperature of 105 to 106° F. for two weeks. I could not induce the mother to apply hydrotherapy. She would not have a trained nurse, she and the father insisted upon taking care of the child and it was under the most unfavorable circumstances, but it did seem to do well with plain vanilla ice cream.

DR. NORTHRUP.—I wish to state that I think it has been proven that children under two years of age are little susceptible to typhoid fever. Under repeated exposure, as in epidemics, they may acquire it. I wish to repeat what I have said before, and I think the work done in Boston proves it that infants under two years of age are not susceptible to the poison of typhoid. Now as an exception, I have recently had a case under two years old, but it was the sixth case in the same family. First an elder child, then the father, and finally an elder brother had the disease. The mother was the only one well. This child for three weeks was sucking its thumb and wiping it over the face of the father. That baby was nine months old. Another case fourteen months old was a nursed baby. The father thought it was very cute to have the baby eat with him his noonday meal out of his bowl of milk. I have seen seven cases under two years, and every one of them has had the history of repeated prolonged exposure and their immunity seemed to be overcome by the overwhelming exposure of an epidemic. It is not an infant's disease. Now, another point, when they do have it, is there anything mysterious about it? Do they have a prolonged fever that is difficult to detect? I maintain that they do not.

The infant of nine months was one of six exposed to infection for three weeks. One was so far along it did not count, but it was one of four in the hospital, and all reacted to the Widal test. This one was late in reaction. She had the Widal test only on the first day of convalescence. But tympanites, rose spots, Widal test, enlarged spleen and diarrhea were present. There was nothing mysterious about it at all; it had all the characteristics of the disease. One of thirteen months had also all the characteristics. It had the profound and sunken appearance, the pallor and rose spots, and all the common symptoms of typhoid fever in infants. Enlarged Peyer's patches do not always mean typhoid fever in infants. The men who did work twenty years ago would not accept that as pathognomonic; and, neither will I accept any little, mysterious fever lasting two or three weeks as typhoid fever in children. Most of the doubtful cases are simply cases of enterocolitis. It is not so doubtful as in adults, for in adults a three or four weeks' fever is very apt to be typhoid fever, and that does not apply to infants; and neither will I accept the enlarged Peyer's patches as evidence that infants have had typhoid fever.

In regard to treatment, any temperature that is too high in children I cool with water. I give no antipyretics. The only question is how to cool them. I usually advise cool water inside and cool water outside. I am afraid of the tub bath in children, because they usually struggle against it. Use cold water, lay cold cloths about these patients, and give cold water internally. That was the only treatment we used in the case to which I have referred, except twice, I believe, we used the tub. I always use heat to the feet, cool water to the trunk, and apply cold water to the head. The child nine months old we fed on modified milk from the Walker-Gordon laboratory. We have a record of what it would take and what it would not take. It would take 3 per cent. fat, 6 per cent. sugar and 1 per cent. proteids, with 10 per cent. of lime-water, and would take nothing else. We couldn't reduce the lime-water or increase the proteids, but it would take the proportions I have given freely. I like ice cream, but often we cannot be sure it is clean cream. It is better to give a good corn starch than dirty cream.

DR. GRIFFITH.—I must say that I take issue with the last speaker entirely. It seems to me that his position is not altogether logical. He will admit that if an adult should have a continued fever for which we cannot find any cause, the mere fact that it is continued makes it probable that it is typhoid fever, even although there are no definite symptoms of the disease discoverable. On the other hand, if the case is in a child, he insists that he must have tympanites, and rose spots, and diarrhea, and all that, before the diagnosis of typhoid can be made; and this, too, in spite of the fact that children, even

more commonly than adults, fail to show a typical picture of the disease in spite of its certain presence. My experience is that typhoid fever is of a frequent occurrence under the age of two years, and that it is frequent even under one year, but that it is difficult to recognize. It is thus difficult to recognize, because infants so frequently have continued fever from so many different causes, and we are, therefore, prone not to have the idea occur to us that the disease may be typhoid; while in an adult we at once consider that this may be the nature of the trouble. Formerly the cases were called remittent. Now they are supposed to be enteritis or gastritis or auto-intoxication, and so on, when really they are typhoid in many instances. I am convinced that if we were to examine these infants more carefully we would more often find rose spots and enlarged spleen. It has been my unfortunate experience, as a resident of Philadelphia, to see a great deal of typhoid fever in infants and children. For a while last year the wards of the Children's Hospital were so full of these cases that it was difficult to get cases enough of other diseases to present to the class.

I have repeatedly seen the disease in children under two years of age. Often in consultation I have seen it overlooked by the physician in attendance, who ought to have recognized it, for the spots were there in full force, and he would certainly have seen them if he had looked for them. I can recall cases seen at three months, at seven months, at nineteen months, and so on. Of course, nobody disputes the fact that typhoid fever is *comparatively* uncommon in infancy, *i.e.*, as compared with the frequency of the disease in adult life; but that it is *actually* rare, or that children are not likely to get it if exposed to the infection, I do not believe. Certainly, the experience of many physicians shows that this rarity is not the case. This has become especially evident since the serum reaction has come to our aid.

I would like to dwell particularly upon what has been said about the use of water. There are many cases, as far as my experience goes, in which bathing does not answer well in children with typhoid fever. I have repeatedly given up first tub bathing and then sponging, because I found the child's condition was made worse rather than better. I think it may be safely stated that children with this disease do not bear hydrotherapy as well as adults do, as a rule. In the Children's Hospital we do not give the baths below an initial temperature of 85°, and often they are given at that temperature without any effort being made to cool them later. Often we find that even 90° or higher does not answer well.

DR. ROTCH.—What Dr. Griffith says about children is very true. Dr. Northrup, as I understand it, refers to cases under two years of age. I think all the evidence points towards the possibility of young infants being affected by typhoid. The

reported cases are increasing all the time. We have had 16 cases which have been proved to be typhoid, and 8 of these died. Although the spleen is probably always enlarged in these cases, it is not possible always to detect it. It may be that infants are not as susceptible as older children and adults, but I think it is a pity to say so much about it, for I think they are susceptible; but infants are not so likely to receive food by the mouth carrying the typhoid bacillus as the older children are. The cases of Dr. Northrup were practically fed upon typhoid bacilli, and it is no wonder they had typhoid fever. Those that get the typhoid bacilli have the disease, and those that do not get them do not have it. I am familiar with Dr. Northrup's work; but I do not think that the pronounced symptoms of typhoid fever appear in early life as they do later. The cases with the severe symptoms are not the common cases in early life at all. Out of hundreds of cases in the Children's Hospital, we have had some severe cases, but usually the cases are exceedingly mild in infancy and early childhood. It corresponds more to the aborted type in adults, and the lesions usually are not nearly so pronounced at autopsy. The rose spots, I think, will be found more common than is usually suspected. We have had a large number of cases in the hospital in the past year. In our experience warm baths or sponging is effective. A very good way is to wrap the child in warm moist gauze and then fan it, which reduces the temperature, and is usually very satisfactory. Children with typhoid fever almost invariably get well, except in severe cases, such as Dr. Northrup referred to, and those cases usually will die. The cases I have referred to gave the Widal test and presented undoubted symptoms of typhoid fever.

DR. WILSON.—I believe no inference regarding treatment can be drawn from a series of 100 cases. But Dr. Blackader's cases were treated by several methods and not according to any one special plan. I note several points in the paper that I would allude to. First, the fact that in this series of 100 cases there were but 4 cases under two years and 1 case under one year. That gives 1 per cent. under one year and 4 per cent. under two years. I note also the fact that the occurrence of relapse was 15 per cent., which is interesting, since the statistics upon relapse are very unsatisfactory and vary very much. The two reasons that led me to speak are first, the importance of emphasizing some facts brought out by this discussion. First, as to the predisposition of age. I entirely concur in what Dr. Northrup has said, namely, that infancy up to two years carries with it a certain immunity as compared with the next few years, and a high degree of immunity as compared with adult life. I have been in the habit of pointing this out to the students and calling their attention to the fact referred to by Dr. Rotch, that this immunity in all probability is not an essential immunity but an

accidental relative immunity. That is to say, the infant in arms is not exposed to the liability of infection to the same extent that the older child and the adult are exposed. I think that is the only philosophical way of looking at the matter from the data that have been collected.

In reference to the diagnosis of enteric fever in infancy, it seems to me we have to recognize two types of enteric fever if we want to have our knowledge conform to the facts. One of them is the infantile type and the other is the adult type. The adult type occasionally occurs in infancy, and the infantile type not infrequently occurs in adults. Perhaps I should not take up your time with this because it seems such familiar knowledge. The infantile type lacks the ordinary clinical diagnostic criteria of the adult type. The infant with typic enteric fever has spots which must be carefully looked for in a large proportion of cases; almost always a spleen which may be at some stage of the process palpated or may be made out by percussion; often diarrhea, rarely tympanites, and almost always a temperature range of remittent type. Curiously enough, the patient is often so little ill that you have difficulty persuading the parents that it has typhoid fever at all. In cases of the infantile type the symptoms are so mild that you often cannot persuade the mother that the child has enteric fever, although the evening temperature may reach 103° or 104° F. Again typhoid fever of the infantile type is not only a disease in which the symptoms are mild, but also in which the prognosis is correspondingly favorable. Dr. Blackader's cases show a mortality of only 1 per cent., although the series include many cases of the adult type. Thus we have a mortality altogether lower than in the adult in enteric fever.

It seems entirely proper that I should say a word upon the subject of hydrotherapy, particularly in the treatment of enteric fever in childhood. In the German Hospital at Philadelphia we have a children's ward in which are treated many cases of enteric fever. In fact, I collected and analyzed two or three years ago 150 cases which I have never had the opportunity to prepare for publication. We treat the cases there by systematic cold bathing, according to the method of Brand, with certain modifications. That is to say, systematic bathing according to that method is followed in a general way, but no humane doctor will treat every case upon the same plan; although the plan is a routine procedure, we often find it necessary to vary it. We commence with a bath of 85° , 90° , or 95° F., according to the intensity of the febrile movement and the state of the secretions and the general condition of the child, and then by gradually lowering the temperature of the successive baths we find what degree of cold the child will bear, and this determined, we carry out in general the formula of Brand as to the temperature. Thus by the adaptation of the plan to the individual we obtain results

which seem to us most satisfactory. The children actually come to like their baths. The bath is not cooled by the addition of ice or cold water after the child is in it. The duration of the bath is from eight to fifteen minutes. The next bath is given a little cooler, until we get the temperature the child bears with comfort.

The Brand method is not essentially an antipyretic treatment, and one of the difficulties in the way of its general acceptance arises from a failure to understand this cardinal fact, which Brand and his followers have always insisted upon. The antipyresis is only an incident of the treatment. The rhythmical repetition of profound impressions upon the nervous system by means of the application of the bath constitutes a means of modifying physiological processes that are disturbed and pathological processes that are in progress, which reacts favorably upon the nervous system, incidentally upon the temperature, upon the secretions, and finally upon the nutrition, thus constituting, when all the factors are taken together, a positive useful treatment of typhoid fever, capable of decidedly and constantly reducing the mortality.

Why are not little children given the advantage of the cold bath or cool bath? There are two objections. First, the nervous system of children is more susceptible; and, second, the superficialities of the child are greater in proportion to the bulk of the body than in adults, and there is a danger of over-chilling the child. Therefore, every thoughtful clinician who has practiced it at all knows that the method of Brand cannot be practiced in the child in the same manner as in the adult.

The temperature used by Brand is 68°, and usually we use in adults 68° to 70° F. In children we begin with a temperature possibly of 90°, and gradually use colder baths until we reach 80° or 70°. The child is gradually lowered upon a blanket into the bath, and it does not get the violent shock which we like to get in the adult—a shock causing deep breathing.

DR. FRUITNIGHT.—I wish to speak of a case in which there was an intercurrent attack of measles. A boy, aged seven, had severe headache, temperature 102° to 103° F., and irregular meteorism, tenderness on pressure, enlarged spleen, rose colored spots, and the case gave a positive Widal test. His sister came down with measles and afterward some other children in the house also had measles. On the thirteenth or fourteenth day of his typhoid, the boy had a temperature of 105°, with the symptoms of measles, including the exanthem, as a consequence his delirium and prostration were increased, and after the measles had run its course, as it usually does, the enteric fever continued its regular course.

I have never before seen this coexistence of these two affections and I think it must be very uncommon. I would have doubted the occurrence and presence of the measles in this case,

had not the other children of the house been attacked with measles, to whom the infection of the typhoid fever case would be directly traced.

DR. GRAHAM.—As I understood Dr. Blackader, the only death occurred at thirteen months, and I would like to know whether an autopsy was made in that case and especially what was found in the bowel.

DR. FREEMAN.—As to the susceptibility of children to typhoid fever, I believe important evidence may be obtained by a study of epidemics of typhoid fever due to the drinking of contaminated milk. In such epidemics it is found that as a rule the liability to attack and the severity of the attack are proportional to the amount of uncooked milk taken, and that those on an exclusive milk diet are most apt to suffer from the disease and have it most severely.

Should this rule apply to infants it is evident that during milk epidemics most of the cases and the most severe cases would occur in children under two years of age. As a matter of fact, in such epidemics children under two years of age are rarely attacked, and if attacked are not usually very severely ill.

DR. MILLER.—I only wish to suggest that one reason the disease is supposed to be rare under two years is because typhoid cases at this age rarely come to autopsy. It is much like lobar pneumonia which was formerly supposed to be very infrequent in infancy, but which clinical observation has shown to be quite common. That belief was founded upon the fact that it was not found often at autopsy; but it was because children rarely died with the disease but usually got well. And the same, I believe, is true in typhoid fever.

DR. DORNING.—Apropos of Dr. Northrup's remarks, I will say that one summer I had three children die of asthenia consequent upon chronic diarrhea. At the autopsies there was found in all 3 cases involvement of Peyer's patches, and the gross appearance gave the impression that they were cases of typhoid fever. The pathologist, however, reported them as cases of follicular enteritis.

Regarding tubbing, or the Brand treatment, my conversation with physicians who have themselves suffered with typhoid fever and who have been subjected to it has shown that, with one exception, they all protested against it. In the use of water I think there is room for great discrimination. After a study of hydrotherapy the more I see of it the more I am impressed with its value and also with its potency for harm. Out of a dozen persons sent to the seaside for bathing, 6 will be benefited and the others will be either injured, or not benefited at all. Cold bath is merely a relative term. Babies do not stand cold water well. A baby with a temperature of 105°

cannot be put into a bath of 68° without shock which will be appreciated in the bluish extremities and the disturbed heart's action. I believe it is best to begin with a higher temperature and gradually reduce the temperature of the baths. One point that has been omitted in the discussion is that while applying water, either in the tub or by cold sponging, there must be kept up continual friction of the surface. This is of real value in the hydrotherapy of fevers. By it we counteract the depressing effect of the bath. My own experience leads me to give preference to cool sponging in children. I usually begin sponging with a temperature of 90° and gradually reduce the temperature.

In regard to diet, there is under discussion at the present time the administration of more substantial food to typhoid fever patients. This past winter I have had three typhoid fever cases who have received solid diet. For instance, one girl sixteen years of age, was brought in, who had received the routine diet of the family. She was in the second week, temperature 103° and the usual symptoms of typhoid fever. There was a slight diarrhea. She seemed to have progressed so well on the diet that I ordered little or no change. She did well; had no intestinal hemorrhage, no aggravation of the diarrhea, or any unfavorable symptoms. She remained in bed eight days, the temperature went down rapidly and five days later, under protest, went to her home. She seemed perfectly well and strong. Two other cases that were given substantial food during the third week made a good recovery without complications. In one case in which I attempted to give some solid food there was a subsequent rise of temperature. I did not know at the time whether that was due to the food or some complication. Later on there developed a large abscess over the trochanter, which probably explained the rise of temperature.

DR. NORTHRUP.—This discussion seems to have resolved itself into a question of personal experience. Now at the Presbyterian Hospital I have had as many as thirty cases of typhoid fever at one time. I have had that service year after year, so that I have at least looked at typhoid fever in my day. At the Foundling Asylum I have seen approximately two thousand autopsies on children, under three years, and in none have I, in my judgment, seen typhoid fever. You may say those are institution children fed on sterilized milk and no typhoid is allowed to get within the door. But eleven hundred of these cases are farmed out and feed on corner grocery milk. Eleven hundred of those are out virtually looking for typhoid fever, but they never bring it back. Dr. O'Dwyer and Dr. Smith and I have been watching for typhoid fever, but we have not found it. I wish to encourage a healthy scepticism in all indifferent fevers under two years. I do not believe children under two years are susceptible to typhoid fever, except feebly

so. Now when they do have typhoid fever they declare it. They have some definite symptoms. They must give the Widal test or have spots, in my estimation, to justify us in making a positive diagnosis of typhoid fever. The most common mistakes arise in early diagnosis, in misnaming the following diseases, influenza, subacute catarrhal enteritis, central pneumonia and malaria.

Again I want to endorse what Dr. Wilson said, and I presume everybody believes it, although I did not think to say it when I was speaking. We do not give the baths for the temperature alone; it is not for the fever, but for the nervous symptoms. And what I call a cold bath is not much below a hundred degrees when it is given for the nervous symptoms. It is for the nervous symptoms, for a heart tonic and for the secretions that we give the bath.

DR. BLACKADER.—I regret that some of the statements in my paper have apparently been misunderstood by one or two of the speakers. My remarks on the persistent low temperature sometimes noted in children only refer to the end of the third, or the beginning of the fourth, week after the period of intermittent pyrexia has passed off. Attention has been called to the frequency with which several children in one family are attacked with typhoid fever. My charts show the same fact, and in two instances in which the first case of the disease was not recognized, the infection was conveyed to many other members of the household, both young and old. This spreading of the infection is more liable to take place in the case of infants and young children than in the case of adults. Dr. Northrup refers to 2,000 *post-mortem* examinations of infants, and states that judging by the lesions found in the intestines, typhoid fever in infancy must be extremely rare. But Dr. Northrup himself admits that the lesions of infantile typhoid fever are ill-defined as compared with those of adult age. With our present knowledge, infection by the typhoid bacillus can only be excluded after a careful bacteriological examination with the newer tests. For this reason I cannot accept his inferences as conclusive. In reference to the employment in children of baths as a therapeutic measure, I desire to again emphasize, as Dr. Wilson has also done in his remarks, the necessity of modifying the temperature and duration of the bath to suit each individual case. The object to be obtained is a tonic effect on the heart and vasomotor centre. I do not think that warm baths, or warm baths followed by fanning, can exert the tonic or stimulating influence on the nerve centres, so desirable in a continued fever, and which are obtained from the regular systematic employment of cool or cold baths. At the same time I quite agree with those who deprecate the use of baths at such low temperatures as to frighten, or unnecessarily shock the child; a condition which

may in some instances antagonize all the good effects to be obtained from the bath. I may say that in my own practice, while employing cool baths in almost every case except the very mild ones, I have obtained only good results, and have heard no serious objection to their use, either from the little patients or their parents.

Prolapsus of the Rectum in Children.—Cumston says (*Annals of Surgery*) that all cases of true prolapse of the rectum will show a tumor projecting out of the anus. At the base of the tumor will usually be found a sulcus between the mucous membrane of the prolapsed gut and the skin of the anal orifice. In almost all cases the lumen of the gut may be seen in the centre of the tumor. There may be inclusion of the peritoneum in cases of prolapsus, but this occurrence is fortunately rarely met with. One of the most important causes of prolapse is *infection*, whether produced by a retention of the feces or by diarrhea. This applies, of course, to young children. In older children and adults the prolapsus is often due to the presence of a polypus, an ulcer, hemorrhoids, or some other lesion of the rectum. The judicious use of a rubber rectal plug to keep the prolapse reduced, cleanliness, and tonic treatment with the use of strychnin, will probably give the best of results. Polypi, hemorrhoids, or other local lesions will require a surgeon's care, irreducible or constricted prolapsus will have to be resected. Mikulicz first cuts through the outer intestinal tube in its anterior circumference, catching up each bleeding vessel as it appears and ligating it with fine catgut. As soon as the peritoneal pouch has been opened its interior is examined for the presence of small intestine. The peritoneal cavity is then closed by a running suture. The anterior aspect of the internal intestinal tube is cut through little by little until it is opened, and then both intestinal tubes are united by deep silk sutures to the entire line of the incision. The posterior surface of the prolapsus is treated in absolutely the same way, both intestinal ends being united by means of silk sutures. He simply covers the line of sutures with iodoform, places a strip of iodoform gauze over this, and then a wood wool cushion. Daily irrigation with a mild antiseptic solution should be used, opium given internally for a week, and the patient kept upon a diet leaving little intestinal residue. The results of operation are usually excellent.—*The American Journal of Obstetrics*, April, 1900.

EXCLUSIVE SOUP DIET AND RECTAL IRRIGATIONS IN TYPHOID FEVER.*

BY A. SEIBERT, M.D.,

New York.

To diminish the number of pathogenic organisms in the human body is to-day recognized to be the best treatment of infected persons. In typhoid this object can be attained successfully by following two distinct indications, namely: (1) by promptly removing all remnants of food from the alimentary canal, and then permitting only such articles of diet to come in contact with the infected surfaces of the intestine as will offer but poor culture media for the typhoid bacillus and its neighbors; and (2) by systematically irrigating the rectum during the entire course of the disease.

To give a cathartic at the beginning of an attack of typhoid is universally practiced, but also the early replacement of the infected alimentary contents by food which will even feed the remaining bacteria better than the removed solids, namely: by milk. This is like emptying a dish of decomposing solid food and immediately filling it again with fresh milk, in the expectation of keeping the latter sweet.

Until the chief cause of gastroenteritis in children had been demonstrated to be the manure bacteria that drop into the milk used for infant feeding, their rapid multiplication during warm weather and their action upon the children who swallow them, and until the imperative therapeutic necessity had been established to withhold all milk from an enteritic patient until he was cured, our treatment of gastroenteritis was but in a doleful state.

To my mind, patients fed on milk during an attack of typhoid (a specific form of enteritis) are but little better off to-day than our former little patients were during an attack of summer-complaint, with milk and opium-mixtures in their intestines. If most of our typhoid patients fed on milk were not adults but children, like in gastroenteritis, the percentage of typhoid mortality of to-day would equal that of gastroenteritis of former

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years. For not alone is the typhoid bacillus to be considered in the bowel of the typhoid patient, but also the many other alimentary bacteria that take part in the attack on the human organism during this disease. If milk is the best food of intestinal bacteria during enteritis without typhoid mixture, then I see no reason why it should be less favorable for their sustenance and propagation during enteritis caused by them *and* the typhoid bacilli.

Reflections of this nature caused me to try the possibility of feeding typhoid patients on a fluid diet not including milk. My first case so fed was under observation during October of 1889, and since then none of my typhoid have been given milk until the rectal temperature has been normal for at least two days. It was found that at the beginning of the attack that plain, cold water sufficed during the first twenty-four to forty-eight hours after the initial purge, although, of course, much depended upon the gastric condition of the patient. Then soups made of meat-broths, containing oatmeal, barley, rice, and peas, strained, of course, and well spiced with salt and pepper; and after another two days lentil-soup and the yolk of a fresh egg added to the oatmeal, rice and barley soups, were given, so as to allow an adult one-half of a pint of two kinds of soup alternately every three hours, and smaller quantities to children according to age. Five meals in all were given during the day. At night only fresh, cold water was given, *ad libitum*, as well as during daytime, in the intervals between the meals. Five to fifteen drops of the diluted hydrochloric acid were given before each meal, unless hyperacidity prevailed. No other medication was employed, irrespective of the height of the temperature or the frequency of the stools. Alcohol was but given in small quantities to habitual toppers during the first few days, at night. Occasionally cold, strong, black, sugared tea was used as a stimulant.

In July, 1889, Backhaut, an assistant in Prof. Mosler's clinic at Greifswald, published a report (*Deutsch. Med. Wochenschrift*, July 18, 1889) on the treatment of typhoid patients by rectal infusions of one-half per cent. tannic acid solutions. The good results obtained were attributed to the germicidal action of the tannin. I ventured to suggest to Prof. Mosler, by letter at the time, that the twice daily executed cleanings of the lower end of the colon might be the cause of the observed beneficial effect

upon his patients; and from that time on every typhoid patient under my care was given two to four rectal enemata of plain warm water daily. It was soon found that rectal tubes were harmful and unnecessary, and that if the buttocks of the patient were but elevated upon the bed-pan, the water flowing gently from the fountain syringe, hanging about three feet above the patient, would dilate the lower colon sufficiently to dilute and carry off the accumulated typhoid feces. Furthermore a short tip introduced through the sphincter ani cannot possibly reach typhoid ulcerations in the descending colon. Since the summer of 1889 these therapeutic measures have been employed by me in every typhoid patient in private practice as well as during my ten years of service in St. Francis Hospital in New York. In all 153 cases were treated in this manner. Seven cases ended fatally, of which 3 were brought in moribund and four had complicating bilateral pneumonia.

RESULTS:

1. Delirium, headache, insomnia, nausea, vomiting and tympanitis usually disappeared within forty-eight hours of treatment.
2. Tympanitis, nausea and vomiting never developed in any patient, even when complicating pneumonia was present.
3. The fur on the tongue disappeared within a few days.
4. Appetite came frequently on the fourth day of treatment, even when the thermometer registered 102° to 103° F.
5. Even excessive diarrhea (fifteen to twenty-five daily stools) disappeared invariably within the first week of treatment.
6. In all uncomplicated cases the temperature began to decline within twenty-four to forty-eight hours after the beginning of treatment and invariably would reach the normal figure within ten to twelve days.
7. In cases complicated by pneumonia, nephritis or phlebitis when treatment began the temperature usually remained in accord with the inflammatory conditions found until these also disappeared, while the cerebral, gastric and intestinal disturbances usually subsided as rapidly as in the uncomplicated cases, excepting anorexia.
8. Complications, when not present at the start, were very rare and then usually developed within the first two days.
9. Intestinal hemorrhage was noticed in three cases, none ending fatally. Perforation did not occur.

FINAL REMARKS:

It was immaterial whether this treatment was begun in uncomplicated cases during the first, second, third or fourth week of an attack, for the above mentioned improvement always began within forty-eight hours, exactly like in gastroenteritis. Cases coming under treatment during the first two weeks of illness usually presented more marked and rapid improvement during the first four days of treatment than older cases.

That milk given to a typhoid patient will cause a new rise of temperature after days of improvement on a soup diet, I have demonstrated time and again to my house-staff in the hospital.

Many of the pneumonia attacks complicating typhoid are due to secondary infection through the blood by organisms finding their way to the lung tissue from the intestine, like in the systemic infection of enteritis in children. By diminishing the quantity of absorbable toxic material in the intestine by appropriate diet and frequent rectal irrigations, we cut short the supply for systemic and pulmonic invasion, and materially aid the restitution of normal conditions.

Typhoid bacilli will readily grow in soup, but this food is so rapidly absorbed that in comparison to milk curds it cannot aid their sustenance long enough to injure the patient.

During the last ten years I have alluded to this plan of treatment in three publications, in *Medical Record* of September 12, 1891; *New York Polyclinic*, March, 1893, and *Medic. Monatschrift* of July, 1894. In the June number of the *American Journal of the Medical Sciences* of 1894, Prof. Yeo, of King's College in London, England, also called attention to the dangers of indiscriminate milk-feeding in typhoid. Other literature has not come to my notice.

114 EAST FIFTY SEVENTH STREET.

Acute Yellow Atrophy of the Liver.—E. M. Schwalbe reports (*Meditsinskoe Obozrenie*, February, 1900), a case of this rare affection occurring in a girl, aged sixteen years. She had been ill a week when she first came under observation, and died a week later. He believes the disease to be the result of some poisonous product, elaborated in the stomach or intestine and carried to the liver by the blood of the portal vein; but whether this poison is a product of bacterial metabolism or of some abnormal fermentation in the digestive tract he does not venture to decide.—*Medical Record*. Vol. lvii., No. 12.

TWO CASES OF FATAL LEAD POISONING.*

BY ALLEN BAINES, M.D.,

Lecturer on Diseases of Children and Associate Professor of Medicine, Trinity Medical College, Toronto; Physician to Victoria Hospital for Sick Children and Assistant Physician, Toronto General Hospital.

It is not with an idea of producing anything original that this paper is presented, but from the fact that clinical histories of lead poisoning in children of a sufficiently extended and minutely noted character are but few. Dr. Putnam in his comprehensive article on "Lead Poisoning" in *Keating's Cyclopaedia*, says:

"The justification for the present article is found not in the abundance, but in the meagreness of the present accumulation of facts relating to children, and the importance of taking steps toward increasing it." There is no doubt that cases of lead poisoning in children are rare, the diagnosis not at all simple, and the treatment unsatisfactory.

My justification is somewhat on the same line, and I can bring but one symptom, unknown to me before now, into prominence, viz., a very pronounced dark blue circle about the anus, more marked from the fact that the children were of fair complexion, otherwise, there is nothing but a carefully taken clinical history and the fact that until the day of the first child's death, no previous history having been obtained, the case resembling so clearly that of basilar meningitis, it was treated as such.

Charles H., aged two years, eight months, admitted to the Hospital for Sick Children, November 20, 1899.

FAMILY HISTORY.—Father, living, healthy, not affected by the lead. Mother, living, healthy, until three weeks since, when she was taken ill with a sharp attack of lead colic, accompanied by the other classical symptoms found in these cases.

The other members of the family consisted of a brother aged five years, nine months, since dead from same cause, an infant at the breast, perfectly well, apparently untouched by the lead. The manner of absorption being, that for a week previous to the first child being affected, the meals had been cooked with

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fire wood procured from staves of old barrels which had contained white lead, so the fumes of lead not only entered into the food, but permeated the atmosphere.

PREVIOUS HISTORY.—The child had never been ill with any complaint whatever, until November 6th, when he had a well marked convulsion, lasting about five minutes. He recovered completely from this attack and was quite well until the evening of the 19th, when he had four convulsions in a few hours' time, the duration lasting from three to six minutes. He has been practically unconscious since the first convulsion, rousing slightly at intervals for a few moments, and has had frequent attacks of vomiting; bowels for the past few days have been somewhat constipated, necessitating mild purgation; appetite ravenous, no history of worms having been passed.

EXAMINATION.—General inspection. He lies on his back in a semi-comatose condition from which he cannot be roused; eyelids half closed, eyes roll slowly from side to side, mouth slightly open, tongue moist and coated, breath nasty and offensive, the same odor seemingly to emanate from the whole body. The right arm and hand firmly flexed, the left extended at the side, occasional twitching of the right fingers of a spastic character. Respiration slow and irregular; abdomen markedly contracted, legs extended, but nothing abnormal. Lungs, normal; heart, first sound aortic accentuated—second sound pulmonary accentuated. Rhythm, irregular, intermitting. Pulse, irregular, full-soft. Eyes, sclera pale, but clear, pupils dilated but react and are equal.

Reflexes.—Plantar absent, patellar absent, cremasteric absent, abdominal absent, Kernig's sign absent.

Can rouse patient only by causing pain on pressure, when he utters a moan and sinks back into comatose condition. Temperature 99.3° F., pulse 60, respiration 14. The condition remained practically the same during the night; temperature rose to 101°, pulse 65, respirations to 20. A condition of meningitis being suspected, collodion vesicans was applied to nape of neck and ice cap to head—an enema was given, without any effect. Three convulsions occurred during the night, the first two involving the right side of the body, the third, the left—in all three the face and neck was violently convulsed.

November 21st.—Twenty-four hours after admission—9 A.M. Abdomen still more contracted, breathing slow, deep, entirely

thoracic, very irregular, intervals of six to ten seconds, occurring between respirations, then regular again. Tache cerebrale well marked. The eyes, examination showed marked neuritis, no choked discs, veins engorged and tortuous. During the day, eighteen distinct convulsions were recorded, most of them being general and epileptiform, but some were unilateral—sometimes only the fingers being involved. Patient still comatose, temperature 102° F., pulse 72, respiration 30, being more regular. Pupils now contracted and equal.

The following description of the features of the convulsions most marked:

First the face would get flushed, eyes would open wide, fixed and staring, pupils widely dilated. The eyes would then roll about the eyelids and lips begin to twitch, and soon whole sets of muscles, face, arms, legs and body; every convulsion beginning from above downwards, care having to be taken to prevent biting of the tongue and lips. During these attacks he gave vent to a peculiar, grunting moan; no opisthotonus.

November 22d.—For the next twenty-four hours there were no convulsions, not even twitching; he appeared much better, retained nutrient enemata—all food by the mouth being at once expelled. Respirations more rapid—34 free, deep and slightly abdominal, at times, however, becoming irregular or rather Cheyne-Stokes in character; pulse rapid—124, regular and soft.

November 23d.—Seemed better and possibly partially conscious. He kept licking his lips, and when asked if thirsty, would nod his head, swallow water eagerly and retain it, but about 3 P.M. began to vomit and kept it up incessantly, not with any effort, the vomitus simply running from the mouth. At 4 P.M. he became quite conscious, sat up and asked for his mother, but almost immediately sank back, lapsing into a comatose condition. The vomiting ceased and twitching began again, pulse went up to 130, respiration 34, temperature 103.3° F. He could not now be roused. For the first time eye symptoms were noticed, external strabismus of left eye with pupil contracted, right dilated and not reacting to light.

During ophthalmoscopic examination, he had a strong convulsion, head being retracted and drawn to the right side. After the cessation of the convulsion the left external strabismus had disappeared, and instead, there was right external strabismus

with the pupil still dilated. Ten more convulsions followed, they were slight, involving the facial muscles and right arm, respirations deep and irregular, pulse rapid, low tension. During the next two hours, he had twelve convulsions, nearly all general. The last one was simply a series following each other in such rapid succession as to be uncountable, and lasting for thirty-five minutes. One hour after the last convulsion the patient died, the cardiac centres failing first, the breathing going on in long inspirations, ten to twenty seconds apart for three or four minutes, after the pulse had ceased to beat.

A *post-mortem* examination was refused.

CASE II.—S. H., aged five years, nine months, brother of Case I., admitted to the Hospital for Sick Children, December 4, 1899. Previous history very good, no illness of any kind. Present illness for past three or four days had severe pain in abdomen, bowels obstinately constipated; this morning had a convulsion of entire body. Whilst waiting for admission, had a series of seven or eight convulsions in twenty minutes. These differed, some being general, some unilateral, mostly right side, and, as in the case of his brother, remained in a semi-comatose condition.

The history so nearly resembles that of Case I. as to make it unnecessary to repeat it. The child lived for nearly the same time to an hour. Knowing of the history of Case I., I had Prof. Ellis examine the urine, four ounces being sent him. He reported the quantity to contain four milligrams of lead.

The convulsions were many, ninety-five on the first day, eighteen during the night. Towards morning the convulsions ceased, but he gradually became weaker and died at 3 P.M.

The *post-mortem* examination revealed nothing markedly abnormal.

BACTERIOLOGICAL REPORT.

Post-mortem examination, December 7, 1899 (twelve hours after death).

Cultures, from kidney, spleen, liver, base of brain and lung, all on blood serum.

Coverslips, preparations from brain, show a large, thick bacillus, freely segmenting, ends rounded; also a diplococcus, the body of which is elongated, resembling the micrococcus lanceolatus; some pairs are enclosed in capsules, others not so.

December 8, 1899.—Cultures from kidney, liver and spleen show no growth.

Cultures from brain show numerous small, raised, discrete colonies, white or pearly in color, with glistening surface.

Coverslips show short, elongated bodies in pairs, end to end, as in the original coverslip preparations, no capsules are seen about them. They are isolated in pure culture. The large rod is not found in culture. The reactions on different media are as follows:

Seventy-two hours old.

Bouillon, dense, clouding, stringy sediment.

Gelatin, growth of white colonies along the stab; no liquifaction.

Agar agar, diffuse, grayish film along line of smear; the edge is wavy and more dense than the central part.

Potato, slight but distinct, moist growth, white in color along line of smear.

Litmus milk, marked acid production and coagulation of casein.

Culture from the lung show (1st) a yellow raised colony; (2d) a white raised colony.

Colony 1, "the yellow colony," shows staphylococcus; the cocci occur singly in pairs and in chains of three or four, and in masses.

On different media after one week:

Bouillon, cloudy, slight, stringy sediment.

Gelatin, growth along the stab, liquifaction along the line of growth is evident, but slow.

Agar agar, diffuse growth on surface of grayish color; distinctly yellow in color in the thicker portions.

Potato, slight, dry, yellow growth.

Litmus milk, marked acid production and coagulation.

LUNG.

Colony 2, "the white colony," shows a diplococcus in all respects morphologically similar to that from the brain.

On media, after seventy-four hours:

Bouillon, slight, clouding, stringy sediment.

Gelatin, growth along stab; no liquifaction.

Agar agar, free growth along the stab; white in color.

Potato, abundant, rather dry, uneven growth; whitish in color.

Litmus milk, no change.

ANIMAL INOCULATION.—December 9th, at 5 P.M., two full-grown healthy house mice were inoculated at the root of the tail with a forty-eight hour blood serum culture of the white colonies, from brain and lung cultures. After inoculation both animals appeared sick, and remained quiet for about twenty-four hours, after which time they seemed active and well. On December 12th the mouse inoculated from the culture from the lung seemed unwell. At 5 P.M. a lameness and spasm of left hind legs were noticed, with inability to use them. At 5.20 animal was found dead.

Post-mortem examination nineteen hours after. At seat of inoculation is a small amount of hemorrhagic exudate; tissues much infected and edematous. Extending down into the left

groin is more extensive infiltration, hemorrhagic in character. Abdominal cavity is free from disease, the organs appear normal, spleen is small; lungs collapsed, normal; heart, right auricle distended with dark blood.

Coverslip preparations from heart's blood, back and groin show a small diplococcus as in the original cultures, lance-shaped, mostly encapsulated, but some are without capsules. The cocci always occur in pairs, end to end. There is also some variation in size.

Cultures were in all respects similar to those of the inoculated organism. The mouse inoculated with the brain culture recovered entirely.

Unfortunately the hospital pathologist was unable to give microscopic results from sections of the brain and cord in time to be included in this paper. I have to thank Dr. Archibald for his untiring energy in watching these cases for me, and Dr. Harold Parsons for the bacteriological notes.

Congenital Dilatation and Hypertrophy of the Sigmoid Flexure in a Boy.—K. G. Lennander, in the *Nordiskt Medicinskt Arkiv.*, March 10, 1900.—Hirschsprung called attention to this deformity in 1886, but very few cases have been reported. In the observation described, the enormous size of the abdomen, diarrhea alternating with obstinate constipation, the flatulence and gurgling sounds in the abdomen suggested peritoneal tuberculosis, but study of the case convinced Lennander that there must be some congenital deformity, so he opened the abdomen, expecting to make an anastomosis. He found the sigmoid flexure colossal, and so dilated and thickened that the success of an anastomosis seemed dubious and he refrained, instituting faradization instead. Each day a liter of salt solution was injected into the rectum, and one of the electrodes inserted, while the other was applied to the exterior of the abdomen—the current as strong as the four-year-old could bear—for ten minutes. This treatment was continued daily for three years. At the end of this time the appearance of the child had become normal, and the functions have remained regular to date, a year since dismissal.—*The Journal of the American Medical Association*. Vol. xxxiv., No. 16.

GENERAL SUBCUTANEOUS EMPHYSEMA.*

BY A. C. COTTON, A.M., M.D.,

Chicago, Ill.

On March 21, 1900, I was called to see a child in consultation with Dr. Kreuser, who had taken charge of the case that day. The diagnosis of the previous attendant had been "Bright's disease with dropsy."

Patient, Dora C., aged seven years, seven months.

FAMILY HISTORY.—Father, living and well. Mother died at twenty-eight years, of Bright's disease of four years' duration. Closer questioning revealed that the mother had suffered from a cough for several years. Maternal grandparents in good health. Patient was the second child. Her older brother died of "spasmodic croup and bronchitis," death occurring at the end of a series of three general convulsions.

PERSONAL HISTORY.—Patient had varicella, pertussis, mumps, scarlet fever and diphtheria during the first five years of life. None of these diseases developed in severe form and from all she made good recoveries. She was active and apparently in good health until July 4, 1899, when she had an attack of measles, followed by bronchitis. Had never been well and strong since this illness. Cough persisted and she "seemed to take cold easily." In February, 1900, she had a severe attack of bronchitis and during this illness there was a daily afternoon rise of temperature, with profuse night sweats. This last symptom (night sweating) had been present for some weeks but to a less marked degree.

March 16th after a very hard coughing spell, a ridge appeared over the right clavicle. The cough continued paroxysmal and frequent, and the gradual extension of this cushiony ridge in all directions occurred.

There was no history of convulsions or edema. Urine had been scanty and turbid.

PRESENT CONDITION.—Patient, small for age, was held by grandmother in a sitting posture, slightly bending forwards. The face presented a swollen appearance, particularly the lower

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lids, which were enormously distended. The skin had a peculiar, waxy color; lips were somewhat cyanotic and the expression was anxious.

Examination of the surface showed great distention about the neck and chest, completely obliterating clavicular depressions, and extending downward over the trunk, especially in the dorso-lumbar region along each side of the spine. Pressure elicited distinct crepitation and left no pitting.

She resisted all efforts to assume any other position than the one mentioned. Her attention was wholly bent upon securing air and repressing the frequently recurring cough. She realized that this increased the dyspnea, and after holding back the cough as long as possible, her hand was silently extended for a glass of water, of which she took but a sip.

Respirations were shallow and rapid (50 per minute); pulse was rapid and barely perceptible; temperature 102° F.

Physical examination by percussion was difficult as she was irritable at being disturbed, and hyperesthetic. However, it was possible to make out hyperresonance over the greater portion of the chest.

From the symptoms the diagnosis of generalized emphysema was made.

During the six subsequent days of life, infiltration of the subcutaneous tissue extended, involving both upper and lower extremities with the exception of palms and soles, the skin becoming tense and shiny.

The paroxysms of coughing increased in frequency, being nearly continuous the last twenty-four hours. There was increasing dyspnea and deepening cyanosis.

The urine showed acid reaction, high specific gravity, no sugar, considerable amount of albumin, with pus cells in great abundance, a few bladder epithelial cells and hyaline casts, besides multitudes of bacteria.

There was no evidence of gastroenteric disturbance. Her appetite became ravenous the last three days.

No *post-mortem* examination or even photographing was allowed nor, in view of the grave prognosis, was radical treatment, such an incision of skin, permitted.

It was subsequently learned that the undertaker reduced the enormous distention by puncture.

But little is said of generalized emphysema in ordinary text-

books. Anderson in the *Twentieth Century Practice* says: "Infiltrations and accumulations of air in the intestinal tissue of the lungs are most frequently seen in young children during an attack of whooping-cough, bronchitis, croup or convulsions or after traumatism, such as tracheotomy. Interlobular emphysema takes place only in young children because as the lung develops the intervals of connective tissue between the lobules disappear. Hence adults do not have interstitial pulmonary emphysema.

"During a violent expiratory paroxysm some of the delicate air cells rupture and air escapes into the connective tissue surrounding the lobules or under the visceral pleura, where it may occasionally be seen *post-mortem* as strings or beads of air bubbles. The amount of emphysema present varies. At times only a few lobules are surrounded by air beads, and again the air may extend along the connective tissue to the roots of the neck, face and general cutaneous surface. Sudden and severe dyspnea after a paroxysm of coughing in a child is strongly symptomatic of interlobular emphysema."

In a hasty review of the literature I have found but few reported cases of generalized emphysema. Gaillard in *Sajou's Cyclopedia*, Vol. v., reports three cases in children of the same family, complicating measles. He thinks there was congenital weakness of the pulmonary vesicles and also a predisposition produced by whooping-cough. Molin, in the *Brooklyn Medical Journal*, October, 1897, reports a case following fractures of the sternum and ribs, in a boy of eight years who was run over by a wagon. The entire subcutaneous area became infiltrated in less than thirty minutes. Within three hours the distention was enormous, and respiration became greatly embarrassed, with marked cyanosis. In this case, immediate relief was secured by incising the integument, the air escaping as from a distended rubber ball. By means of drainage tubes the emphysema gradually disappeared, although after eighteen days some crepitation was present.

A case in a child six and one-half months old, reported by Wrinch in the *Canada Lancet*, January, 1900, gives a history of cough, without, however, severe paroxysms. The child died on the sixth day of the generalized emphysema. The autopsy showed a left pneumothorax, with collapsed lung, which on section revealed miliary tuberculosis. The right lung was honeycombed with cavities. Subsequent investigation proved

the tubercle bacillus present in large numbers in the sputum of the father. The same writer suggests the differentiation of this condition from lesions due to the *bacillus aerogenes capsulatus* by the fact that in the latter emphysema increases *post-mortem*.

Fowler and Godley reported seven cases, several of which followed tracheotomy.

From the histories of recorded cases it would appear that the tendency of extensive general emphysema is towards a fatal termination, either from this condition alone or from the disorder which it complicates. A case came under my observation, as coroner, in which an inquest was held upon a young primipara who died in the first stage of labor, after a fit of violent vomiting, followed within a few hours by general emphysema. The autopsy showed no other cause of death. In this case a torn pleuritic adhesion afforded a point for escape of air. Is it possible that any treatment may ameliorate this condition or lessen the fatal tendency? It occurs to the writer that where the point of entrance of air to the subcutaneous tissue is within reach, as after tracheotomy or external lesions, that the extension of the mischief might be prevented by surgical interference. From the apparent fact that the condition is intensified by coughing or deep respiratory movements, the indications would seem plain to relieve the cough and restrict respiration by any means in our power. Molin's experience with incisions and drainage tubes, and the subsidence of the distention by the undertaker's puncture in my case, certainly would suggest the advisability of efforts to relieve by similar procedures.

The Diseases of the Blood in their Relation to Surgery, and their Treatment.—G. G. Van Schaick states (*New York Medical Journal*, June 2, 1900) that he has had beneficial results follow the use of pepto-mangan in the surgical diseases of childhood. A boy of eleven years who had old scars due to a tuberculous adenitis was anemic and badly nourished. He had a suppurating sinus in the arm from which a large sequestrum was removed. He had 3,100,000 red blood corpuscles and hemoglobin 33 per cent. After the use of the pepto-mangan in two drachm doses for three weeks he had 4,254,000 red blood corpuscles and hemoglobin 68 per cent. In facial erysipelas seen in asylum practice the cases improved under pepto-mangan. In a case of hemophilia the hemoglobin increased in one week from 32 to 45 per cent. by the use of pepto-mangan.

Clinical Memoranda.

A CASE OF HYSTERIA WITH LARYNGEAL MANIFESTATIONS IN A BOY OF ELEVEN YEARS.*

BY C. HERMAN, M.D.,
New York.

Hysteria is not an uncommon affection among children—boys as well as girls. They may present almost all the manifestations that are seen in the adult. In many cases the “stigmata” are overlooked, either because a careful examination for them is not made, or the age and lack of intelligence of the child make such an examination difficult.

Henoch divides the cases of hysteria in children into four groups: in each certain manifestations predominate:

First. Those with marked psychical phenomena, *viz.*: complete or partial unconsciousness, hallucinations, delirium, pavor nocturnus or diurnus.

Second. Those with convulsive seizures:—singultus, crying or laughing spells, dyspnea, asthmatic attacks, spasmodic cough, sighs, grunts.

Third. Those with coordinated movements, as springing, climbing, running.

Fourth. The rarest form, those with neuralgic or trophic disturbances.

The case I report belongs in the second group, which includes the cases with laryngeal manifestations.

Briefly, the most important points in the history of the case, are as follows: The patient is a boy eleven years old, the oldest of four children. The mother is easily excited and subject to attacks of unconsciousness. One other child is, according to the mother, “peculiar.” When the boy was four years old he had an attack of scarlet fever; otherwise he has had no disease, and has not had convulsions. He has frequent headaches.

Etiologically nothing is known of physical or psychical trauma; no fall or fright. Parents have not noticed masturbation.

The present illness began eight weeks ago with eructations. This was followed in a few days by the laryngeal attacks here described. These attacks increased in force and frequency for a week, then remained stationary, the number varying somewhat from day to day. The attacks consist of a long, deep inspiration, with a simultaneous spasm of the glottis, causing a

* Presented to the Pediatric Section, the New York Academy of Medicine, April 12, 1900.

sound similar to that of laryngismus stridulous, but much louder and shriller. They recur at intervals of from ten to fifteen minutes. They cease during sleep.

The frequency of the attacks is also affected by surroundings. At home they are much more frequent. This is principally due to the familiarity of his surrounding, possibly also partly due to the impurity of the air in small, ill-ventilated rooms. In the presence of a number of strangers the attacks are much less frequent. For example, when riding in the cars, he is able to control the attacks, because the attention attracted by so peculiar a sound causes him to feel ashamed. (I have noticed this in similar cases under exactly the same conditions.)

PRESENT CONDITION.—A somewhat undersized, anemic, not very well nourished boy. He has a dreamy appearance, given by the drooping of the upper lids. Tapping of the skull is painful. The eyes show a narrowing of the field of vision on both sides—more marked on the left. He cannot recognize violet and green. There is anesthesia of the pharynx. Hearing, smell and taste are normal. Chest and abdomen show no abnormalities. There are frequent attacks of vomiting. Urine shows a relative decrease in the amount of urea. He has painful points along the spine. No anesthetic areas are found. Paresthesia (which he describes as a feeling of pins and needles,) in the left upper arm. There is a nearly constant pain in the left lower thoracic region. During examination pain can be produced almost anywhere by suggestion. The hypnotic state is easily induced.

With reference to prognosis, Henoch very well says: "The more wonderful and inexplicable the symptoms are, the more complete their change in character from time to time, the more certain is a favorable outcome." In this case with the proper treatment the prognosis is good, always keeping in mind the danger of recurrence.

The boy was first put on sedatives, chloral and the bromids, as usual without any effect on the attacks. The galvanic current, which often acts favorably, is now being tried. These cases should have tonics, iron, arsenic, baths, fresh air, good nourishment. Of course he should not attend school, no mental exertion being permissible. If these measures fail to effect a cure, and the circumstances are such as to make it possible, the boy should be sent away from home. As a last resort, suggestion in the hypnotic state might be tried.

Occasional Periscope of Teratology.

BY J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E.,

Edinburgh, Scotland.

Audion, P.: Epispadias in a Female Infant. (*Bull. et Mém. de la Soc. anat. de Paris*, 6 s., Vol. ii., p. 29, 1900.)

Audion describes a case of epispadias in a female infant who died of congenital debility when seven days old. She had been born prematurely, and weighed only 1840 grammes. About three millimeters above the anterior vulvar commissure was a small quadrilateral orifice surrounded by a sort of pigmented fringe; pressure over this caused a jet of urine to be expelled from it, and urine was passed from it also, but not constantly. The autopsy revealed a small pyriform bladder continuous with a normal urachus. The urethra was short, rather broad, and situated in the middle line; and the ureters opened normally into the vesical bas-fond. Palpation at the level of the pubes showed that the symphysis was absent, the two bones being separated from each other to the distance of about one centimeter. No clitoris was evident; the hymeneal orifice was oval; the labia minora were well developed; and the labia majora formed two large folds. The radiograph showed the separation of the pubic bones at the symphysis, where the union was only by means of fibrous tissue which formed a bridge in front of the subjacent urethra. [In this case the pigmented fringe at the sides of the urethral orifice possibly represented the stunted halves of the clitoris. The term epispadias is justifiable although this particular case was an instance of the minor degree of the anomaly, for epispadias in the female consists in a more or less extensive defect of the upper wall of the urethra with displacement upwards of it to a point above the level of the clitoris. It was not exstrophy of the bladder, for the anterior bladder wall was intact, although it differs from most of the recorded cases in the separation of the pubic bones at the symphysis. I have elsewhere (*Edinb. Hosp. Rep.*, iv., 249, 1896) considered in detail the reported cases of epispadias in woman, which is relatively one of the rarer anomalies in the female.—J. W. B.]

Deganello, U., and Spangaro, S.: Congenital Aplasia of the Cerebellum. (*Arch. ital. de biol.*, Vol. xxxii., p. 165, 1899-1900.)

Although the subject of the cerebellar aplasia described by Deganello and Spangaro was not a human infant but a puppy, the case nevertheless has its interest. From birth there was disorder of movement which increased so much that at the end of six months the dog was able to stand for only a few minutes and to run a distance of twenty meters required a quarter of an hour. At the autopsy the only anomaly discovered was an evident and uniform smallness of the cerebellum with some increase in consistence. The cerebrum weighed 63.51 grms., and the cerebellum only 3.37 grms.; the latter was to the former, therefore, in the proportion of 1-19 instead of the normal relationship, which is 1-8. The authors, with Golgi, recognize three layers in the cerebellar structure: the molecular layer including in it the cells of Purkinje; the granular layer; and the internal or medullary layer. Microscopical examination in the present case revealed no abnormality in the medullary layer but in the other two, which are nearer the surface, there were evident changes. The molecular and granular layers measured only one-half of their proper thickness, the relation between the two being, however, retained. Further, the former had not its normal molecular appearance but looked like a fine network, and in its inner third were the round cells which are usually associated with the granular layer while in the granular layer they were conspicuously diminished in number. In consequence of this the granular layer was more transparent than usual. In the molecular layer the cells of Purkinje stained badly, were smaller than normal, and instead of being globular or pyriform were irregularly pyramidal; they recalled by their appearances the cerebellum in process of development. The cerebellar cortex was poorly provided with blood-vessels. The spinal cord, cerebrum, medulla oblongata, and the olivary bodies were normal both microscopically and macroscopically. To summarize: the alterations were limited to the cerebellum; and they consisted in diminution in the thickness of the molecular layer, marked diminution in number of the granules in the granular layer, and an incomplete development of the cells of Purkinje as regards their form. The case was one of aplasia of the cerebellar cortex, determined by the persistence

during extrauterine life of an arrangement of structure normal in embryonic periods of development; in other words, an arrest of development. The observation confirms the opinion that the cerebellum is a necessary organ for the regulation of voluntary movements, at any rate of those concerned in locomotion.

Wolff, J.: Spontaneous Amputations of the Fingers.
(*Arch. f. Gynaek.*, Vol. lx., p. 281, 1900.)

Wolff reports a case of intrauterine amputations of the fingers which is noteworthy on account of the fact that the amputating band was preserved intact at the time of the birth. The fetus was the offspring of parents in whose family history there was no record of malformations. The mother was thirty-seven years of age, and she had previously given birth to a normal infant and had had an abortion at the second month. The present pregnancy was complicated by a red vaginal discharge and by other phenomena which threw doubt upon the existence of gestation at all; but at about the sixth month of pregnancy severe hemorrhage came on with opening up of the cervical canal, and by means of suprapubic pressure and vaginal manipulation the whole ovum was removed intact. It contained from 8 to 10 tablespoonsful of yellow, slightly muddy liquor amnii, and a malformed fetus which had been dead apparently for from four to six weeks. The fetal surface of the placenta was everywhere covered with the amnion which was intact. Near the insertion of the cord, which was almost central, there was a projecting fold of amnion which was adherent to the cord and from it a strong band passed to the right hand of the fetus; the band measured about 10 cms. in length. It was firmly attached to the terminal phalanx of the ring finger which it had apparently amputated and which was still adherent by a fibrous pedicle. From the ring finger the band passed to the middle finger, the end phalanx of which was deformed. There was no syndactyly of the right hand. The left hand showed syndactyly of the ring and middle fingers which had also short bands attached to them, and the little finger wanted two phalanges; and the forefinger was contorted. Probably these amputations on the left hand were due to a second amniotic band which arose from the same place as the first on the fetal surface of the placenta. The fetus was 24 cms. in length and showed no other anomalies. The case is of special interest on account

of the presence of the feto-amniotic band in its intact condition, for it is almost inevitable that as the infant is being expelled from the uterus the band will be broken. There was the usual story of a maternal impression.

Clarke, J. Jackson: Macrostoma and Congenital Club-hand. (*Physician and Surgeon*, London, Vol. i., p. 980, July 12, 1900.)

The case recorded was one of right-sided club-hand in an infant. All the digits were present but the hand was abducted to an acute angle with the forearm, and only one bone, the ulna, could be felt. The mouth showed a cleft on the same side with a papilla; and in front of the external ear were three little papillæ or tubercles (pre-auricular appendages). The author accounts for the malformations by supposing the hand and face of the infant to have been pressed one against the other during intrauterine life. [The association of malformations of the hand and corresponding side of the chest has been specially pointed out by Dr. John Thomson (*Teratologia*, Vol. ii., p. 1, 1895), and he has also imagined that by some means the arm came to be firmly and continuously pressed against the chest and so caused both surfaces to be malformed. In cases like that of Clarke it may be supposed that from some cause or other the hand was displaced upwards and came to lie at a higher level than in those referred to by Thomson. Possibly the different results may be explained on the supposition that the cause came into operation at an earlier or later period in intrauterine life.—J. W. B.]

Kriwsky, L.: A Case of Exomphalos with Distortion of the Lower Extremities. (*Monatsschr. f. Geburtsh. u. Gynaek.*, Vol. xi., p. 895, 1900.)

A primipara, aged twenty-one, gave birth at the seventh month of pregnancy to a malformed, dead-born but not macerated infant. The presentation was probably transverse and the method of delivery was by spontaneous evolution. During her pregnancy the mother had to spend twelve hours daily in a squatting posture at her work. The amnion was continuous with the skin of the abdomen, and the latter was open to the front, allowing the liver, stomach, and intestines to escape into the membranous sac. There was also a vesical exstrophy, and on the bladder wall thus exposed three projections were visible,

two of which were the openings of the ureters, and the third (penis-like body) which lay in the middle line had to do with the end of the intestine. There was no trace of genital organs. The lower extremities were of normal size but were folded backwards upon the trunk of the infant so that the heels projected upwards above the level of the shoulders; further the limbs were rotated so that the great toes were lateral and not mesial in position, and the patellæ looked forward. Imperfect development of the caudal fold of the amnion is suggested as the cause of the malformation. [In this case there is a degree of resemblance to the condition of affairs met with in symphodia or the siren fetus. In it there is also displacement and rotation of the lower limbs and absence of external genitals; but the lower limbs are there more or less fused as well as rotated, and there is not the combination of exomphalos. The peculiar cramped position which the mother was forced by her work to adopt during practically the whole of her pregnancy, is an interesting fact in the history of the case; but it cannot be regarded as certainly causative, as the malformations met with must all have been initiated before the effect of pressure of this kind could act upon the gravid uterus and its contents.—J. W. B.]

A Notomelic Monstrosity.—M. Castro (*Revista de la Sociedad Medica Argentina*. Vol. vii., p. 136. 1899) describes a case of the rare form of monstrosity known as notomely. It was that of a female infant, two days old, who presented in the middle line of the back and about the level of the third or fourth dorsal vertebra two limbs resembling arms and composed of two segments each, an apparent forearm and a hand. Below these was a rounded tumor about half the size of the infant's head, which was in part a spina bifida sac. There was a cephal-hematoma on the right parietal bone. The labor had lasted twenty-four hours, and the mother was a primipara. There was no syphilis. The spina bifida sac was tapped, and then the accessory limbs were afterwards removed by operation; but the child died on the seventh day, after having shown convulsions. The dissection of the accessory limbs and of the mass from which they sprung is described, and it may be noted that they contained bones corresponding to some of those normally present in the upper limbs (humerus, metacarpals, phalanges), but defectively developed. The cause of death was suppurative spinal meningitis and pulmonary congestion.—*British Medical Journal*. No. 2049.

ARCHIVES OF PEDIATRICS.

SEPTEMBER, 1900.

Edited by WALTER LESTER CARR, M.D.

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OPIUM IN SUMMER DIARRHEA.

In a recent article Crandall states that opium must be used intelligently, if used safely and profitably. Such a statement applies to all therapeutic agents, but it is especially true of opium—a drug that is always to be given with caution. The pendulum has swung both ways. At one time opium was prescribed for summer diarrhea before care had been taken to completely empty the intestine. Then physicians were taught that it was a dangerous drug for children and were advised not to give it.

Various reasons may be offered for the change of opinion regarding the use of opium in summer diarrhea. Physicians who were watchful and careful noticed that when opium was administered in the doses usually prescribed, even when its administration had been preceded by a cathartic, the children remained feverish, were slow to recover their strength and presented, in many instances, symptoms of spurious hydrocephalus

that were more often due to the narcotic drug than to the exhaustion accompanying the intestinal drain. Most serious of all, the mortality rate in these cases was high.

With the study of the bacteriological changes in milk and milk food it was appreciated that the use of an opiate, when the enteric tract contained particles of food, was unnecessary and harmful.

Sterilization and pasteurization were undertaken to stop bacterial growth, and it was demonstrated that by these means the need of the preparations of opium was lessened, because attacks of summer diarrhea were not so frequent among children fed on milk prepared by either of these methods.

After learning that milk in most cases was the food that carried infection, gruels, broths and albumen water were used in place of the milk diet, and opium was less often given because symptoms were not so severe.

Enteroclysis and lavage still further limited the number of cases needing opium. The administration of intestinal antiseptics had some influence in restricting the symptomatic administration of opium.

Opium is an important and necessary drug, but its use in summer diarrhea is more restricted because its action is better understood. It lessens peristaltic activity, and when it is given in frequent or large doses it stops it entirely. If the intestine has been cleared of offending material, this lessening of peristalsis is not called for, as the symptoms can be treated by other means less injurious to the patient.

Opium is a valuable drug when the passages are large and watery, when the movements are frequent, with tenesmus, and in cases where peristalsis is so rapid that there is a movement of the bowels whenever food is taken into the stomach. Its value in inflammatory states of the mucous membrane of the intestine is generally appreciated. Opium is a medicinal agent that is not now used as formerly, because the prophylaxis and management of summer diarrhea in children are better understood and treatment strictly with drugs is less often demanded.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, May 10, 1900.

WALTER LESTER CARR, M.D., CHAIRMAN *pro tem*.

TWO CASES OF GASTRIC ULCER.

DR. LOUIS FISCHER presented a nine year old girl whom he had first seen last November. She was a bottle-fed baby reared on condensed milk, and had many of the ailments and diseases of childhood. She had been generally backward in development, not having learned to talk until the age of four years. In the last six months she had lost sixteen pounds, had had night sweats, and was in poor general health. For a long time there had been bloody vomiting, the stools had been tarry and at times contained pieces of mucus. The stomach was distended and tender, and chemical examination after a test meal of a roll and a cup of tea showed her to be suffering from hyperchlorhydria. A few days later she developed a bulemia, which by the first week in December had given place to persistent vomiting and anorexia. Rectal alimentation had been resorted to, together with the use of suppositories containing one-quarter of a grain of nitrate of silver. When at her worst, about this time, the temperature in the axilla on several times had been 77° F., this temperature being vouched for both by the speaker and by Dr. Meyer, the attending physician. The child gradually rallied from this state of collapse, and after prolonged medicinal and dietetic treatment was now practically well.

The second patient was a girl of fourteen, also suffering from gastric ulcer. There was a history of long ill health and of a great variety of methods of treatment. She had begun about three years ago to vomit blood, and to suffer from frequent attacks of anorexia, distress after eating and vomiting. Examination of the stomach contents showed an excess of hydrochloric acid. She had been placed on fluid diet, and given internally bismuth, calcined magnesia and resorcin, and had been kept in bed much of the time. Under this *regime* she had improved very decidedly, but had suffered a relapse on being permitted to return to her work at the end of March.

There was a constantly painful and sensitive area over the stomach, corresponding to the place where she experienced the distress after eating. She was constipated; she was emaciated and suffered from headache. Dr. Fischer said he regarded both of these children as primarily chlorotic. He had been unable to find any evidence of syphilis, tuberculosis or hemophilia. Blood examination showed a marked polynuclear leucocytosis with a diminished amount of hemoglobin.

DR. LA FETRA thought these children were unusually young to suffer from gastric ulcer.

DR. CARR thought it very doubtful if they were permanently cured, and they might ultimately require operation.

DR. FISCHER replied that the literature contained quite a number of reported cases of gastric ulcer in very young children—even in infants of two to four months.

PECULIAR TEMPERATURE RANGE.

DR. LA FETRA exhibited a temperature chart showing variations in twenty-four hours from 94.4° to 106° F., though there was no septic process present. As this peculiar range of temperature had occurred during convalescence from a lobar pneumonia, empyema had been suspected, but had not been found. The case was diagnosed as the grip, and the fever quickly subsided on taking the child to another place. It was singular that on the return of the child to this room, upwards of four months later, the same fever returned, but again quickly disappeared, this time permanently, by a change of air, and ultimately a change of residence.

DR. CHARLES HERMAN observed that this range of temperature was not at all uncommon in connection with the grip.

DR. LA FETRA remarked that repeated examinations of the blood had failed to show the presence of the malarial plasmodia.

MULTIPLE BONE LESIONS.

DR. WALTER DUNCKEL presented a boy with multiple bone lesions, probably specific. When two years old the boy had been subjected to some operation for disease of bones of one toe. Subsequently the disease had attacked the right great toe and the left elbow. There was no history of syphilis, but he had improved under a course of iodid combined with mercurial inunctions. The liver and spleen were enlarged. The very rapid

improvement seemed to point rather to syphilis, though the location was suspicious of tuberculosis.

DR. SAMUEL LLOYD remarked that numerous instances had been reported in which tuberculous disease had shown marked improvement under the same medicinal treatment. Most of these cases of multiple joint lesions are tuberculous, although the tubercle bacilli may be absent from the discharges and can only be demonstrated by scrapings from the tissues adjacent to the sinuses.

DR. HERMAN expressed the same opinion regarding the inconclusiveness of the proof afforded by such medication.

DR. C. C. CARMALT directed attention to the not infrequent occurrence of both syphilis and tuberculosis, especially in hospital children. He had seen several cases in which syphilitics had become subsequently infected with tuberculosis. The Italians and Poles seemed to be especially prone to bone disease, and in them the disease runs a peculiarly chronic course.

RUBBER NIPPLE FOR USE WITH INFANTS HAVING CLEFT PALATE.

DR. SAMUEL LLOYD exhibited a simple modification of the rubber nipple for facilitating the feeding of children with cleft palate. It consists in a wing of sheet rubber attached to a non-collapsible nipple in such a way that during the act of suckling it fills up the cleft.

DR. JAMES J. WALSH recalled having seen a similar device gotten up in Philadelphia by a shoemaker whose child had a cleft palate. The chief difference was in the material, which, in this instance, was very naturally leather.

Scarlet Fever.—K. Morkotun noted (*Medizinskiya Prib.*), in his observations, that the urine contained albumin in cases complicated with suppurating processes. In one there was transient myxedema, evidently due to the involvement of the thyroid. In the desquamation stage the skin contained a number of micrococci, probably a species of streptococcus. The same cocci were found in the pus of an abscess. The presence of these cocci in the desquamating skin is probably the cause of the contagiousness at this stage.—*The Journal of the American Medical Association.* Vol. xxxiv., No. 10.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, May 8, 1900.

DR. T. S. WESTCOTT, VICE-PRESIDENT, IN THE CHAIR.

DR. D. J. M. MILLER read a brief report of

A CASE OF ACUTE LEUKEMIA IN AN INFANT OF EIGHT MONTHS.

The case was that of a male infant of healthy parentage, who had always been well until six months old, when a pustular eruption appeared in the left axillary and mammary region. This healed in four weeks, leaving slightly depressed, bluish-white scars without specific pigmentation. With the onset of the eruption the infant lost flesh and color and suffered constantly from digestive disturbances. About a week before it was seen marked epistaxis had occurred. The patient was extremely pallid and feeble, with cold and edematous extremities, and feeble heart and pulse. No evidences of syphilis, rickets, or enlarged lymph nodes could be discovered. The belly was greatly distended, but there was no ascites. The liver extended two inches below the costal border. The spleen was enormous, reaching downwards and obliquely, beyond the median line to within two inches of the right Poupart's ligament. Its surface was smooth, hard, painful on pressure, and the notch could easily be felt. The blood showed 1,653,000 red blood cells and 326,500 white blood cells, a proportion of 1 to 5. The red cells were much altered in shape and size. Two days later the house was visited for the purpose of estimating the hemoglobin and making a differential count, only to find the infant had died that morning. No autopsy or permission to obtain specimens of the blood was permitted.

The case was reported with great hesitation, as no scientific purpose is served, and diagnosis is not certain in disease of the blood unless the latter is carefully studied, yet the rarity of leukemia in infants, and the probable correctness of the diagnosis makes the case of interest. In the absence of a blood count, and because of the difficulty in distinguishing the blood affections of infancy, the case could not be classified, but it was probably of the splenomyelogenous type, although the lymphatic variety is more common in childhood and in the acute forms. The possibility of the specific nature of the skin eruption was discussed and dismissed because of the brief and favorable course without medication and the absence of other

specific signs in the child or its parents. Attention was called to the acute course—not over two months. This is within the limit fixed for acute cases by Ebstein, namely, nine weeks. This form is very rare in infancy and childhood. Morse only found six acute cases at this period, and but one in an infant, while Fussell, Jopson and Taylor could discover no instances below two and one-half years.

DR. L. C. PETER reported a case of

FACIAL DIPLEGIA DUE TO MIDDLE EAR DISEASE.

The patient was a girl of fourteen years, who had an attack of scarlet fever in November last, during the second week of which she had pain in both ears followed by free discharge. A few days later she developed a double facial palsy. The forehead was smooth, the face devoid of expression, and she could not close the eyes by voluntary effort and could not contract the muscles over the eyes. She had difficulty in holding liquids in her mouth, and had lost the power of taste on the tip of her tongue. Improvement progressed rapidly on the left side so that her appearance now is that of right-sided facial palsy. The causes ascribed to the condition are, middle ear disease, pontine disease, syphilitic and other disease of the nuclei and the nerves, diphtheria, as in a polyneuritis in which the facial nerves may share, and cold. In children, also, the condition may be congenital, or an injury at birth by the blades of the forceps may cause the palsy.

DR. HAND said he was very much interested in Dr. Peter's mention of the possibility of facial palsy being induced by a polyneuritis following diphtheria. I have never before seen such a possibility mentioned, and have never heard of such a case.

DR. PETER said he had never seen a case caused by diphtheria and did not remember of any reported in literature. He spoke of the possibility of such an occurrence, however, because it is mentioned by Gowers and by Dercum.

DR. ALFRED HAND, JR., reported a case of

INTUSSUSCEPTION IN AN INFANT FOUR MONTHS OLD.

(For complete history see ARCHIVES OF PEDIATRICS, August, 1900, p. 587.) The attack began with colic and diarrhea and there soon developed vomiting and the passage of blood and mucus from the bowel; the tumor was palpable in the line of

the descending colon. Reduction was accomplished by the injection of a pint of salt-solution, the syringe being elevated two feet above the bed on which the child's shoulders rested, while the body was held up feet foremost. At the same time the tumor was gently manipulated and disappeared as the abdomen became distended. There was a subsequent enteritis with signs at one time of a recurrence of the intussusception, which disappeared under the use of opium.

DR. JOPSON stated that he saw the case only once. At that time if recurrence of the intussusception had occurred it had been spontaneously reduced. The child was calm, its expression placid, and there was no tumor. He thought that Dr. Hand's explanation of the recurrence of symptoms was a very reasonable one: *viz.*, that there had been an enteritis following the reduction of the intussusception, and that this had given rise to secondary symptoms of irritation, the mucus stools, etc.

DR. MILLER called attention to the fact that very often in these cases there is no discharge of blood or mucus, and the only signs are those of obstruction of the intestine. Such a case occurred in a child in a neighboring city. The patient, a babe of eight months, was taken ill with severe vomiting and pain in the abdomen, and the condition had become so grave after twenty-four hours that the father, who was a physician, decided to operate. Operation was done, and an intussusception was found. At no time during the attack was blood or mucus seen. He believed that cases of intussusception should be operated upon as early as possible. Statistics show that about 40 per cent. are saved if operation is undertaken in the first twenty-four hours, and the prognosis of the operation becomes progressively worse in accordance with the time that it is delayed. If injections are used they should be given with very great care; the height of the water-container should not be more than two or three feet.

DR. HAND said that the height at which he had the container was two feet, but he called attention to the fact that the child was held by the heels, and its hips were therefore somewhat elevated. Consequently the real fall of the water was somewhat less than two feet.

Current Literature.

SURGERY.

Stone, J. S.: Injuries about the Shoulder at Birth.
(*The Boston Medical and Surgical Journal*. Vol. cxlii., No. 77.)

Some of the conclusions given after a study of obstetrical injuries about the shoulder are:

True congenital dislocation of the shoulder, that is, defective development of the scapula and head of the humerus, is of extremely rare occurrence.

True traumatic dislocation of the shoulder at birth or in early infancy is of extremely rare occurrence.

Obstetrical paralysis is of Erb's type, due probably almost invariably to a stretching and in some cases a rupture of the two upper roots of the brachial plexus.

Obstetrical paralysis is usually recovered from entirely in the course of a few weeks or a few months. If recovery does not occur within this period the prognosis is very much more serious.

After an infant's arm has been held in the position of inward rotation for some months the posterior part of the capsule becomes so stretched as to permit the head of the humerus to slip out of the glenoid cavity posteriorly, while the anterior portion of the capsule and the pectoralis major are shortened. This backward subluxation is always made easier by the relatively small size of the glenoid cavity in infancy.

Any abnormality in the shape of the head of the humerus or in the glenoid in a case accompanied by paralysis or lack of development of the deltoid and supra- and infra-spinatus muscles is probably secondary to the paralysis, and if accompanied by a dislocation is not to be looked upon as the primary cause of the dislocation. Lack of bony development of a paralyzed arm may become very marked after the lapse of years, and this lack of bony development is not in any way to be regarded as proof of a congenital defect.

All early cases of obstetrical paralysis are to be treated by sling or bandage which will support the paralyzed muscles and prevent dragging on the ligament and injured nerves.

In cases of obstetrical paralysis which persist without improvement there is reason to hope that surgical intervention looking to a union of the torn ends of the fifth and sixth cervical roots at a point from a quarter to three-quarters of an inch from their emergence from the canal may be of benefit.

The subluxation resulting from the paralysis is to be treated by stretching or section of the contracted muscles and ligaments, by osteotomy, arthrodesis, or muscle transfer, according to the conditions present in each case.

MacLaurin, C.: A Case of Strangulated Inguinal Hernia in an Infant, Aged Fourteen Days. (*The Lancet.* No. 4001.)

A male infant aged fourteen days had a congenital right inguinal hernia. When seen the tumor had been irreducible for thirty-six hours. It appeared as a tense, shining, edematous mass of the size of a duck's egg; it was fluctuating, very tender and occupied and distended the right side of the scrotum. There was no impulse on crying. There had been no vomiting, but the abdomen was distended.

Operation showed the internal ring to be compressing agent. The sac was left *in situ*, as owing to the baby's bad condition it was thought inadvisable to prolong the operation. The next day the temperature was 103° F., but there was a good recovery.

The case is of great interest because of the early age at which the strangulation occurred. This was probably due to the unusual development of the conjoined tendon.

Russell, R. H.: A Case of Irreducible Dislocation at the Elbow. (*The Lancet.* Vol. 3995.)

A boy of eight years sustained a dislocation of both bones of the forearm backwards at the elbow. Efforts at reduction under chloroform were unavailing. A longitudinal incision was made over the extensor aspect of the joint and the triceps and aponeurosis were divided. It was found that the internal epicondyle of the humerus was separated and the brachialis anticus muscle was forced into the joint. The humerus was pushed through the anterior ligament of the joint and it was lodged in front of the brachialis anticus. The muscle was partially divided and the bones replaced; the divided triceps was sutured. Six days later the stitches were removed and the wound was healed. A plaster-of-Paris splint was worn for a fortnight. Five months after the accident movement was good, but the action of the brachialis anticus was not complete. The boy was able to play all his games and there did not seem to be any weakness or defect in the limb.

Scudder, C. L.: Surgery of the Epiphysis. (*The Medical News.* Vol. lxxvi., No. 10.)

Many of the epiphyseal separations are mistaken for fractures in the neighborhood of the epiphysis. The important details of the anatomy of the epiphysis should be kept in mind. The Roentgen's ray is of great value in these cases. Four cases of separation of the epiphysis are reported.

The first was in a boy of fourteen years who had a separation of the left humeral epiphysis as the result of a fall. There was also a fracture of the radius and the ulna. Separation of the epiphysis caused a dislocation of the diaphysis through the skin.

The wound was enlarged and the joint was found open. The arm was put up in a plaster-of-Paris dressing. Two years after the accident all movements of the arm and forearm were normal. The hand and forearm were smaller than on the other side. The second case was a boy of seven years, who fractured the diaphysis of the humerus close to the epiphyseal line. The head of the bone was felt to be in the glenoid cavity and cartilaginous crepitus was distinctly felt. The boy made a good recovery. The third case was a girl of six years who had a slight trauma to the elbow. This caused a separation of the lower humeral epiphysis. The deformity tended to easy reproduction. There were no complications. Immobilization was secured by an internal right angle splint. The girl did well. Case number four was a boy who caught his knee in a revolving wagon wheel. The thigh was shortened, the leg rotated inward and the great toe pointed to the other side. There was great mobility of the knee joint. Under an anesthetic the separated epiphysis of the femur was replaced. A plaster-of-Paris splint was applied but at the end of a week the deformity had recurred. As reduction by manipulation was impossible an incision was made and the epiphysis and diaphysis were brought into apposition and after the application of a splint with the knee at an acute angle the boy made a good recovery.

The Röntgen ray traceries are of value and interest as records of the various stages of these deformities.

Lees, D. B. : A Case of Chronic Intestinal Obstruction; Necropsy. (*The Lancet.* No. 3995.)

Intestinal obstruction is a rare, but very important complication of appendicitis. It is specially likely to occur in cases in which localized abscesses have formed. Obstruction of the intestine, when chronic in character, if due to appendicitis, is more likely to result from matting together of the bowel.

A boy of two and a half years was constipated and later he had diarrhea. These conditions had been observed for six months. The stomach was noticed to be getting larger and the diarrhea was accompanied by abdominal pain. He passed some blood by the rectum and vomited dark brown fluid. When seen the child was thin and fretful, but he had no fever and at first no diarrhea. The heart and lungs were sound, but the abdomen was enlarged. There was visible peristalsis, and on the right side, low down, there was a mass which felt like enlarged lymph nodes.

Two months later the boy had severe abdominal pain accompanied by visible peristalsis. The diagnosis lay between tuberculous lymph nodes with a matting of the intestine and chronic intussusception. Laparotomy was performed. There were some adhesions that had to be broken and the coils of the intestine had to be separated. Lymph nodes were felt to be

enlarged. There were some yellow tubercles on the peritoneum. Though the child improved for a time he gradually sank and died a fortnight after the operation.

The autopsy disclosed a dense adhesion between the liver and abdominal wall. The peritoneum had a few small, scattered tubercles. The intestine was bound together. The appendix was in a mass of adherent intestine with its tip attached to the lowest part of the right lobe of the liver. Several lymph nodes contained in the matted mass were tubercular. There were ulcerated places in the small intestine which communicated through fistulous openings with the appendix. Two small foreign bodies were found in the intestine. Tuberculous changes were present. No masses of lymph nodes were found, but the nodes were large and some were caseous. It is probable that the tuberculous process caused the attachment of the appendix to the liver.

Lord, J. P.: Congenital Hip-Joint Displacements. (*Western Medical Review.* Vol. v., No. 3.)

The word "displacement" is used instead of "dislocation." The pathology of veritable cases of displacement teaches that there has been no perfect acetabulum formed from which the head of the femur could have been dislocated. This rarely occurs in well-formed joints. A boy of three years and eight months had a congenital dorsal displacement of the hip which made the leg 5 centimeters short.

The joint was operated upon, and it was found that the acetabulum was small. It was questionable whether this case might not have been caused by a fall when the child was a year old. The operation was a success. A side splint of plaster was kept on for some time.

Nash, W. G.: A Case of Suppurative Appendicitis With Secondary Liver Abscesses. (*The Lancet.* No. 3995.)

A boy of fifteen years had been ill for some days with a pain in the right iliac fossa and vomiting. The pain increased and the temperature which had been normal went up to 103°F. There were sweats and fever that lasted some days.

There was swelling under the liver and a general abdominal pain, but no tumor could be felt in the region of the appendix. The abdomen was resonant except in the right hypochondrium.

An incision was made from the right linea semilunaris, about an inch above the crest of the ilium, to the mid-axillary line. Pus flowed from behind the colon. A concretion was removed from behind the cecum. The pus contained fecal matter. A sloughed remains of the appendix came away.

The patient died five days after the operation and twenty-one after the appearance of the symptoms.

The autopsy showed an abscess cavity between the layers of the meso-colon. The meso-colon at the hepatic flexure was adherent to the liver, and when the adhesions were separated the liver was found to be ulcerated. Section showed numerous abscess cavities. The stump of the appendix was found curled upwards behind the ileum. A perforation on the posterior surface of the colon lead into the abscess cavity. There were suppurating retroperitoneal lymph nodes. The abscess in the liver was evidently due to direct infection from the original abscess cavity and not by the portal system.

Wirt, W. E. : The Diagnosis and Treatment of Congenital Dislocation of the Hip. (*The Cleveland Medical Gazette*. Vol. xv., No. 6.)

The author agrees with Marsh that the congenital cases of dislocation of the hip are far from uncommon, and are met with in individuals who are otherwise healthy. It is on account of its reputed rarity that it is apt to be overlooked or mistaken for some other affection of an entirely different kind. To confirm this opinion a number of cases are reported. Some were supposed to have spinal disease and others infantile paralysis. The diagnosis depends upon the attitude of the child while standing, the peculiarity of the gait in walking, the prominent hip or hips, shortening of the limb, if single dislocation, pain, delayed walking, limitations in the motions of the joint, crepitation, movement sometimes of the head of the bone over the pelvis, and above all the relation of the head of the bone to Nélaton's line. The writer's plan for treatment is to use by manual or mechanical means all the force necessary to bring the head of the bone to its normal site. In this case the proper muscles are elongated, which is safer than cutting the wrong muscles.

The non-cutting reduction method is rarely effective after the age of four or five, but is especially effective in infants or in those under two years of age. No unpleasant symptoms have been traced to the severe traction, and in some cases 150 to 200 pounds were used.

MEDICINE.

Koplik, Henry: Myocarditis in Infancy and Childhood.
(*The Medical News*. Vol. lxxvi., No. 13.)

Myocarditis is a disease frequently associated with pneumonia, typhoid fever, diphtheria and influenza, and other infectious conditions. It is also present with endocarditis and pericarditis. It is, no doubt, induced by the toxins produced by the activity of infectious microbes, and it is the result of fever and inflammatory diseases of the lining and covering of the heart. There is a parenchymatous degeneration in acute forms of diphtheritic poisoning and the muscle undergoes extensive change with cloudy swelling, loss of striation and swelling up of the nuclei.

The heart ganglia are not influenced by the change in the muscle.

The disease may be present in limited or extended areas.

Pertussis furnishes an example of myocarditis in the cases where there has been a prolonged strain from severe paroxysms.

A positive diagnosis of acute myocarditis is not always possible, but we may suspect it in all the weakening diseases of early life where there are symptoms of faintness, pallor, vomiting, and disturbed and irregular heart action. The physical signs of faint apex beat, weakness of the first sound, increased intensity of the second sound at the pulmonic orifice and intensified second sound at the apex indicate danger.

The strength of the child must be fostered. The hope of these cases lies in well sustained nutrition.

Lancet, The: Report of the Special Commission on Glycerinated Calf Vaccine Lymph. (*The Lancet*. No. 4000.)

Glycerin was used with vaccine lymph as early as 1850. At the present day the addition of a mixture of equal parts glycerin and saline solution forms part of the routine practice in the preparation of vaccinal matter. Besides adding to the keeping quality of the lymph it increases its vaccinal activity.

After a careful examination of various preparations of vaccine virus the Commissioners believe that those who are engaged in the preparation of glycerinated lymph are fully aware of the need for careful glycerination, but evidently antiseptic precautions are not thorough.

Some of the conclusions given as the result of a careful consideration of the subject are embodied as follows:

If the lymph be free from bacteria (especially streptococci and staphylococci) and typical vesicles slow of development with little inflammatory areola and late in coming to maturity be obtained there need be no fear that the patient is not properly vaccinated.

There has been a marked general improvement in the character of the lymph supplied from various sources. The "extraneous" bacteria have not yet been brought down to a constant quantity.

When the collection of the lymph had not been carried out under sufficiently strict conditions of cleanliness and with proper antiseptic precautions a comparatively large number of sporulating and anaerobic organisms were present.

Sufficient precautions should be taken to remove the organisms usually found on or in the appendages of the skin of the calf.

Where the glycerination is properly carried out there appears to be little danger of the occurrence of active tubercle bacilli in vaccine lymph.

The use of calf lymph entirely does away with any danger of the transmission of syphilis through the agency of vaccine matter.

When blood is present in the lymph it loses some of its potency and its activity falls more rapidly than in lymph not tinged with blood. Bacteria develop more rapidly in such lymph.

The spore-bearing and anaerobic organisms are, except when the lymph is taken from diseased animals, entirely innocuous.

With healthy animals, great cleanliness, strict antiseptic precautions in regard to the skin, the hands of the operator, the instruments, and the capillary tubing, the fewer will be, not only the organisms that may be eliminated by glycerin, but also the spore-bearing aerobic and anaerobic organisms.

Sheffield, H. B. : Influenza in Children. A Contribution to the Study of Influenza in Children, with Special Reference to its Treatment with Sodium Benzoate. (*The New York Medical Journal*. Vol. lxxi., No. 26.)

Influenza is an acute infectious and contagious epidemic and sporadic disease due to Pfeiffer's bacillus. It is generally accepted that influenza enters the system through the respiratory tract. It is yet uncertain how the digestive and nervous systems become infected.

There is no line of demarcation of the poison traveling through the system.

The Eustachian canals and frontal sinus serve as portals of infection. Meningitis may arise in this way.

Among the characteristic nervous phenomena of influenza, in the order of their frequency, are hyperesthesia, somnolence, insomnia and vertigo. The symptoms as affecting the respiratory system are those of sneezing, cough and disturbance of respiration, so that on the outset of an attack the differential diagnosis from pneumonia is almost impossible.

The temperature in young infants is not always a reliable guide, as it may be some degrees below normal.

Influenza is prolific of complications and sequelæ. Pneumonia is especially common and the mortality rate is high in those cases where the patients are not kept quiet in bed during convalescence. Otitis and meningitis are common complications.

Nephritis is sometimes observed. In some cases there is pyelitis.

Bradycardia is recorded in one case. Adenitis and changes in the lymph nodes are frequently seen.

Every form of cutaneous eruption may accompany influenza. The diagnosis rests on:

1. The invariable presence of influenza bacilli of Pfeiffer in the expectoration.

2. The simultaneous development of respiratory, digestive and, at times, nervous phenomena.

3. Early and pronounced prostration, incommensurate with the severity and duration of the attack.

In addition to these differential points we must bear in mind the characteristic signs of all other diseases resembling influenza, such as pneumonia, meningitis, gastroenteritis, typhoid fever, scarlatina, measles, continued hyperpyrexia, and rheumatism, and of those associated with influenza not mentioned here.

In the treatment of the disease salol, sodium salicylate and quinin are recommended, but special reliance is placed on sodium benzoate in doses of $1\frac{1}{2}$ gr. every three hours for a child of six years.

An extensive bibliography accompanies the article.

Daniel, Annie S.: A Clinical Study of 450 Cases of Scarlet Fever. (*The Journal of the American Medical Association*. Vol. xxxiv., No. 9.)

The general symptomatology of the disease, as it was observed in dispensary practice, is presented. Among other symptoms noted were these:

Premonitory State.—A premonitory period existed for four days with 6 children, three days for 11, two days in 46 cases, and twenty-four hours in 55 cases. The remainder were seized at once, while in apparently perfect health.

The First Symptom.—The eruption was the first symptom noted in 186 children, spasms in 2, a chill in 2, sore throat in 18, fever in 28, fever and vomiting in 27, and 41 presented vomiting only as a first symptom.

Kidneys.—Twenty-three children presented albumin and casts in the urine, these rapidly disappearing. This small number is probably due to the fact that the majority were so young, hence no clinical symptoms of involvement of the kid-

neys; one passed a markedly diminished quantity of urine from the beginning to the end of the illness; and repeated daily examinations failed to reveal either casts or albumin.

Kidney Complications.—This is probably the most dreaded complication, and it occurred as a solitary one in 15 patients; of this number 5 presented nothing unusual, 2 became chronic and 1 received absolutely no treatment.

Two children had secondary eruptions. Four patients had the complication of scarlet fever and measles.

Griffith, J. P. Crozer: Scarlatina Miliaria. (*The Philadelphia Medical Journal.* Vol. v., No. 19.)

Reports of four cases are given and suggestions are made as follows:

1. However frequently miliaria may attend severe cases of scarlatina, the oft-expressed view seems untenable, that its presence is an indication that the case is severe. In none of the four cases recorded was the attack severe.

2. The same statement applies to the intensity of the scarlatinal eruption and its relation to miliaria. There appears to be no connection between the two. There seems to be different causes acting to produce the efflorescence and the vesiculation, although these causes are undoubtedly frequently associated.

3. Contrary to the opinion of certain writers, there appears to be no necessary relation between the amount of scarlatinal peeling and the degree of miliaria eruption.

4. The view of Thomas is very probably correct, viz.: that the development of miliaria in scarlatina depends largely on some peculiarity in the skin of the patients, rather than on any special intensity of the scarlatinal rash or other factor. The observation of Henoch upon a family tendency to miliary scarlet fever seems to support this view.

5. It is perfectly possible in occasional cases to have the presence of abundant miliarial eruption cause decided difficulty in diagnosis, and even lead in to error.

Halsted, T. H.: The Significance of Earache in Children. (*The Medical News.* Vol. lxxvi., No. 11.)

After a consideration of the subject the following conclusions are given:

1. Earache in children is generally caused by acute inflammation of the middle ear, suppurative or catarrhal.

2. Infants and young children may have suppuration in the middle ear without giving satisfactory evidence of pain, or without rupture of the drum-membrane.

3. In the absence of other known cause of pain, from which a child is evidently suffering, the first cause to be thought

of should be acute otitis media, and this calls for an examination of the drum-membrane.

4. It has been shown by examination of the middle ear during life and *post-mortem*, that purulent otitis media is nearly always present in acute infectious diseases of the gastrointestinal and respiratory tracts in young children, especially in gastroenteritis and bronchopneumonia, to which disease it probably stands in a causative relation.

5. The cause of death in many acute and chronic infectious diseases, in meningitis and in the exanthemata is the result of unrecognized and untreated abscess of the middle ear.

6. Repeated earaches in children are ordinarily but a sign of acute exacerbations of a chronic otitis media resulting from adenoids.

7. In adult life, so-called catarrhal or progressive deafness is often but a final stage of the otitis media which had its beginning in early childhood when it was due to adenoids and practically curable.

Fitz, R. H. : Idiopathic Dilatation of the Colon. (*The Boston Medical and Surgical Journal.* Vol. cxlii., No. 11.)

A child of two years and one month had been nursed until twenty-three months old, and had also been fed since the age of eleven months. Constipation had existed from birth and was only relieved by laxatives and enemata. When six months old there were frequent loose discharges during a period of two months, and since then constipation had been more marked than before. There had been a considerable progressive and symmetrical enlargement of the abdomen, with slight temporary diminution in size, dependent upon evacuations of gas and feces. The distended abdomen was everywhere tympanitic, although the abdominal walls were sufficiently flaccid to permit the distended intestinal coils to be readily palpated. There was no obvious cause of obstruction to be determined, and the general nutrition of the child was unaffected. The case was regarded as one of infantile dilatation of the colon, due to obstinate constipation. As there were no urgent symptoms, and sufficient temporary relief was to be obtained by laxatives and enemata, it was considered inexpedient to recommend any so radical a measure as extirpation of the distended portion of the large intestine.

Willard, De F. : Diagnosis and Treatment of Tuberculosis of Bones and Joints. (*International Medical Magazine.* Vol. ix., No. 3.)

It is necessary to emphasize that rheumatism in a single joint in a child never exists without positive indications of fever.

Of the symptoms of tubercular invasion of a joint, muscular

rigidity is the most reliable sign and usually one of the earliest symptoms. A careful examination is necessary in all cases.

Children of tubercular parents are predisposed to tubercular disease, but an absolutely healthy child may, under the influence of a traumatism, have a joint tuberculosis.

There can be but one rational line of treatment:

1. To fortify the entire resistive powers of the individual so that the assault of the bacilli may be successfully repulsed, limited and ultimately cast out as *débris*, or successfully encapsulated.

2. To assist these powers by rest and mechanical measures having for their view the prevention of added inflammatory action which may give mixed infection and lead to suppuration.

3. The removal of the diseased focus or of its products, as necessity arises.

Symes, Langford : On the Study of Diseases of Children. (*The Dublin Journal of the Medical Science.* Third Series. No. 341.)

He refers to the great progress taking place in pediatrics in various countries, and specially commends the high pitch of development which the study has reached in America as shown by the fine hospitals, the scientific dietaries and the milk laboratories. As reasons for its special prosecution he refers to the hosts of diseases almost peculiar to infancy, the high infantile mortality, the need of singular dexterity in the examination of a sick child, the frequency of serious disease in children, the fact that many forms of infantile disease are still undescribed, the differences between the diseases of children and those of adults and the dissimilarity of symptoms of a given disease in children and adults. The dissimilarity of symptoms is easily comprehensible when we remember the anatomical difference of their organs and the unlikeness of their secretions. In young infants nothing is too trivial to notice, while the difficulty of the study is shown in the extent to which reliance has to be placed almost entirely on observation and the language of signs as shown by the child's position and countenance. The subject of therapeutics is very important, and no "rule of thumb" is possible in treating a child.

Gradwohl, R. H. B. : A Preliminary Report on the Etiology of Scarletina. (*Philadelphia Medical Journal.* Vol. v., No. 12.)

In 7 cases the diplococcus scarlatinæ of Class was found from the first week until the end of convalescence. In 4 of the cases it was found in pure cultures from the blood. In 1 of the cases it was separated from the urine in pure culture.

This diplococcus is pathogenic for mice, guinea pigs and swine, and non-pathogenic for dogs, cats, white rats and

rabbits. While the report is limited to a few cases, it is regarded as agreeing so well with the result of Class' investigations as to bear out the importance of the diplococcus scarlatinæ as the etiologic factor in scarlet fever.

Thomer, Max: The Direct Examination of the Larynx in Children. (*The New York Medical Journal.* Vol. lxxi., No. 10.)

After recounting the methods of Kirstein and Escat for examining the larynx in children, the author states that the direct examination by Kirstein's method affords in all cases an excellent view of the lower pharynx, of the epiglottis and part of the vestibule. In many cases the arytenoid cartilages can be seen and in rare cases also the epiglottis. Which of the various methods is the best, and whether all of them are not open to improvements, or may be superseded by still better methods, only the future can show. None of these methods will be required when, even with the aid of great patience and tact, laryngoscopic examination is at all feasible. But it is confidently believed that these methods of direct, though more or less forcible, examination of the larynx in young children are a step forward and a distinct advantage over our former helpless inactivity, when in most cases we were only too often compelled to base our diagnostic and therapeutic actions entirely upon the urgency of the symptoms.

McKinney, Richmond: The Role of Purulent Rhinitis of Childhood in the Production of Atrophic Rhinitis. (*The New York Medical Journal.* Vol. lxxi., No. 26.)

While not accepting the view that atrophic rhinitis is a sequence of chronic purulent rhinitis of childhood, he reports 2 cases of purulent rhinitis where atrophic changes resulted. The two children were brothers, one of nine years and the other of seven. They were both well developed physically and no adenoids were present.

Purefoy, R. D., Lyle, R. P. R., and Lloyd, H. C.: Clinical Reports of the Rotunda Hospitals. (*The Dublin Journal of the Medical Science.* Third Series. No. 341.)

Icterus is not by any means rare. The statistics show a percentage amongst the live-born children of 16.5, and during the months of June and August, 1899, it rose as high as 23. It appears to be more common amongst the prematurely-born children, and it is interesting to note that on one occasion of two premature twin children only one was affected. In every case it was an evanescent condition, appearing usually on the third or fourth day, though several times as late as the seventh, and passing off in three or four days. A proportion show yellowing of the conjunctiva, but it is exceedingly difficult to

obtain a sight of that part of the eye in some babies. However in others there was no discoloration, and the only sign was a bronzing of the skin, often only of the face, and the napkins were unstained. As a rule the children are fed by the mother solely. It is seen also in bottle-fed infants. During one month the experiment of administering castor-oil on the second day to a considerable number of infants was tried. Of these a very small number showed signs of icterus. They show no sluggishness while it lasts, and take the breast as well as usual. Sodium phosphate is administered in a small dose.

Bourneville and Bellin: Symptomatic Idiocy With Destructive Lesions of the Insula and Atrophic Sclerosis of the Temporal Lobe. (*Archives de Neurologie*. Vol. ix., 1900. No. 54.)

The patient was a girl, of neurotic family history, born after a normal pregnancy and labor, who first had an attack of convulsions at the age of eight months. This attack lasted four hours, appeared co-incidentally with the first tooth, and was followed by a diminution of intelligence, diplegia with predominance of the paralysis on the left side, and followed by repeated convulsions, sometimes eight or ten in one day. At the age of sixteen months, she had an attack of illness lasting three weeks, and diagnosed as meningitis. During the next three months she had no convulsions, and when seen at the end of that time, she had the appearance of a strumous infant, with pale, bloated, expressionless face, asymmetrical head, large tonsils, incomplete dentition, frequent vomiting, semi-flexion of the left forearm and some rigidity of the left leg. The child did not walk, was completely idiotic, and its sleep was often interrupted by cries. Tuberculosis developed, and death occurred at the age of three and a half years. At the autopsy the right cerebral hemisphere was found to be atrophied, weighing 135 grammes less than the left. The entire right temporal lobe and insula were occupied by a pseudo-cyst containing cerebrospinal fluid, the result of an old lesion. The vessels of the pia mater at this point were smaller than those of the opposite side. The lobe had preserved its shape, and was of a yellow color, darker in some places than in others. The convulsions around were hard, white and atrophied. In the left temporal lobe there was a small yellow area. The parietal convolutions on that side were especially prominent. Tubercles were found in the lungs, liver and mesenteric lymph nodes.

The primary lesion seems to have been a vascular one—obliteration of the trunk of the Sylvian artery and almost all its branches, causing destruction of the insula and the right temporal lobe. An encephalitis was then added, and caused atrophic sclerosis of most of the convolutions around the primary lesion. Arrested development of the right hemisphere followed this double lesion, and complete idiocy and the paralysis resulted.

The contracture is explained by the secondary degeneration present in the peduncles and other parts of the cerebrum. In considering the lesion in the anterior extremity of the left temporal lobe, it must be remembered that these symmetrical lesions are not rare, and that one hemisphere is almost always more deeply involved than the other.

Campbell, Robert: Lymphatic Varix of the Groin Containing Chyle. (*The British Medical Journal.* No. 2047.)

A girl of nine years had a swelling in the right groin that had been noticed for a year. The swelling was supposed to be due to a fall. The patient was anemic and delicate looking, though her nutrition was fair and her organs were normal. The swelling was below and outside the pubic spine. It was doughy in consistence, disappeared gradually on pressure, gave a faint impulse on coughing, and was smooth on the surface, except where there was a small, hard nodule resembling in size and shape a lymph node. An incision was made over the swelling which was found to consist of a cyst like dilatation of a lymphatic vessel, which presented dilatations at intervals. A quantity of milky fluid escaped, which, on examination, was shown to be chyle. The lymphatic vessel was ligated and the patient was well in a week. The blood was not examined. Two months after the operation it was reported that the swelling in the groin showed a tendency to return and there was some swelling of the foot and knee of the affected side.

The changes in the lymphatic system are usually ascribed to blocking of some part by the *filaria sanguinis hominis*. The girl had lived in the West Indies and had suffered from malaria, but as a blood examination was not made, the influence of the malaria could not be determined. The condition might be brought about by a change in lymph nodes consolidated by a tuberculous deposit.

Arraga and Vinas: Sclerosis of the Pancreas Following Chronic Gastroenteritis. (*Arch. de Méd. des Enf.* Vol. iii., No. 7.)

Having been impressed with the frequency of changes in the pancreas at the autopsies on children with chronic gastroenteritis, the authors studied this point more carefully, maintaining that the pancreatic lesion is of the first importance in the symptomatology, prognosis and treatment of gastroenteritis. In 10 detailed cases, from two to eight years of age, the pancreas was found to be hard, more or less diminished in volume, and the seat of a chronic angiopancreatitis, as demonstrated by the microscopical examination. The inflammatory process apparently spreads from the intestine through Wirsung's duct to the pancreas. The acini suffer less than the ducts.

McIlraith, C. H.: Congenital Laryngeal Obstruction. (*The Lancet.* No. 4000.)

A female baby of six months with congenital syphilis had had persistent respiratory stridor from the age of six weeks. The stridor was entirely inspiratory, expiration being noiseless. When the breathing was regular or superficial the stridor was diminished or absent. It was absent during sleep. It increased after crying and also by changes in temperature. There were no signs of obstruction. The mucous membrane of the nose and the nasopharynx was relaxed and there was some adenoid thickening.

On laryngoscopic examination the aryteno-epiglottic folds seemed to extend from the tip of the epiglottis to the tips of the arytenoids as thinned bands, which were closely approximated to one another. The upper opening of the larynx was reduced to a narrow slit. There was some edematous swelling over the arytenoids. When six months old the baby died suddenly, apparently from laryngeal spasm.

On autopsy the larynx showed the same condition as during life, except that there was considerable relaxation of the mucous membrane over the arytenoids. It was probable that the stridor was purely mechanical, produced by the valvular action of the upper aperture of the larynx. The case is a rare one.

Morse, J. L.: Splenic Anemia. (*The Boston Medical and Surgical Journal.* Vol. cxlii., No. 17.)

One of the cases was a boy of seven years. No syphilitic or alcoholic history. He was nursed and was healthy until six months old. He got his teeth late, but walked at eighteen months. He had not been well since his third year. The chief symptoms had been gastric, with pallor and weakness, dyspnea on exertion and at times his feet were a little swollen. There had been no hemorrhages at any time. His head was large, his teeth poor. There was a slight rosary. Lungs normal; heart slightly enlarged to the right, but the action was regular and strong. There was a systolic murmur over the whole precordia, loudest at the base. Abdomen large but soft. Liver flatness began above at the fifth rib in the nipple line. The edge was felt an inch and a half below the costal border. The spleen could be felt distinctly running out from beneath the ribs in the nipple line, then toward the umbilicus, extending downward below the pelvic brim. The posterior border could be easily made out. The surface was smooth and the edge fairly sharp. Slightly tender on deep pressure. No enlargement of the lymph nodes.

BLOOD.—Hemoglobin, 57 per cent.; red corpuscles, 3,400,000; white corpuscles, 5,200; small mononuclear, 16 per cent.; large mononuclear, 5 per cent.; polynuclear neutrophiles, 76 per cent.; eosinophiles, 3 per cent. No abnormal white cells; fairly num-

erous microcytes and macrocytes. Moderate poikilocytosis; no nucleated forms.

When eleven years old he had improved a great deal in general condition, but was still unable to exert himself without some dyspnea. There was no longer any swelling of the feet. Appetite and digestion were good. He was slightly jaundiced at times, but never had clay-colored stools.

He had had nose-bleed several times but no other hemorrhages. He was in good general condition, but undersized. Anemic with a slightly yellowish tinge. Liver flatness began above at the fifth space in the nipple line. The edge was just palpable at the costal border. The spleen could be felt distinctly running out from beneath the ribs in the nipple line, downward to about the level of the iliac crest and then backward and upward. The surface was smooth and the edge sharp. It was not tender.

BLOOD.—Hemoglobin, 52 per cent.; red corpuscles, 3,128,000; white corpuscles, 6,520; small mononuclear, 22 per cent.; large mononuclear, 2 per cent.; polynuclear neutrophiles, 75 per cent.; eosinophiles, 1 per cent. No abnormal white cells; considerable variation in staining of red corpuscles; marked variation in size, but no special tendency to large or oval forms; moderate poikilocytosis; no nucleated forms.

The splenic tumor in this case may be regarded as of comparatively recent development. The persistence of the anemia would also seem to rule out any infantile condition.

Anemia of various grades of severity, with enlargement of the spleen, with or without leucocytosis, is not at all uncommon in infancy. It is especially common in rickets. In these cases the splenic tumor seems of no especial diagnostic significance, as great enlargement of spleen is often found when there is but little anemia, and great anemia when there is but little enlargement of the spleen. The splenic tumor and anemia seem independent of each other and are both probably the results of some common cause. In infancy the common cause is apparently always some profound, complicated and obscure disturbance of the nutrition.

Jefferiss, F. B.: A Case of Incomplete Development of the Third and Fourth Ribs. (*The Lancet.* No. 4003.)

The patient was a poorly nourished boy, aged twelve years. The right side of the chest presented obvious flattening and a deficiency in muscular covering which gave it a very wasted appearance. There was no nipple on this side. On abducting the right arm the anterior axillary fold was represented by a well-marked fold of skin extending from the level of the fourth costal cartilage to half-way down the arm; there was no muscle whatever in this fold. The first and second ribs appeared to be quite normal but seemed rather close together. Between the

lower margin of the second rib and the upper margin of the fifth there was an obvious deficiency in the bony chest wall which extended out as far as the mid-axillary line. This space was covered by normal skin and under this was seen and felt a firm yielding fascia-like structure which was made up of tense vertical bands. One especially strong band extending between the second and fifth ribs at their union with their cartilages was well seen on deep inspiration. The right free margin of the sternum was easily felt with the prominences for articulation with the third and fourth costal cartilages. In the mid-axillary line a hard ill-defined prominence was felt which seemed to be the free end of the third rib. Half an inch below this the fourth rib was felt to run downwards towards the fifth and became indistinct apparently above and behind it at the anterior axillary fold. There was no trace of the pectoralis major on the right side, while the pectoralis minor was represented by a small but very strong muscular slip extending between the coracoid process and the first rib, near its cartilage. The right deltoid was more developed than the left. The boy had complete use of his right arm. There was good expansion of the chest. There was slight lateral curvature of the spine in the upper dorsal region with the convexity on the right side and a compensatory curve in the lumbar region.

Barr, James: Kernig's Symptom in Meningitis. (*The British Medical Journal.* No. 2047.)

He has seen the sign "over-action of the flexors" both in the upper and lower extremities, in cases where there was no reason to suspect any spinal mischief. In one case of basal meningitis, due to middle ear disease, it was prominent in the lower extremities but not in the upper. Also in a case of probable tuberculous meningitis it was well marked in the lower but not in the upper extremities.

Class, W. J.: The Etiology of Acute Tonsillitis. (*Interstate Medical Journal.* Vol. vii., No. 3.)

There is no room for doubting that the vast majority of cases of acute tonsillitis are of bacterial origin. *Staphylococcus pyogenes aureus* and *albus* give rise to about 30 per cent. of the cases, while the remaining 40 per cent. are usually put down to the credit of the streptococcus. Observations made in 2,000 cultures showed that there was a tendency at first to consider every organism that showed cocci in a chain arrangement as streptococcus pyogenes, and small cocci in bunches as staphylococcus pyogenes; likewise bacilli arranged parallel and showing transverse striations generally passed for Klebs-Löffler bacilli. It is probable that most bacteriologists have made the same errors.

The anginas are classed as follows:

First. Those caused by pneumococcus; the largest and most important group.

Second. Those caused by the diphtheria bacillus.

Third. Those caused by the streptococcus pyogenes.

Fourth. Those caused by the diplococcus scarlatinæ.

Fifth. Those caused by the influenza bacillus.

Sixth. Those caused by the staphylococcus pyogenes.

Seventh. Mixed infections, two or more of the above germs being present in a given case.

There is good reason to consider the pneumococcus as the causative factor of a large percentage of the fevers of childhood, and that the angina caused by this organism has been generally overlooked, especially in very young children. The contagion from a case of scarlatinous sore throat is capable of giving rise to typical scarlet fever in another person who has been exposed to it.

O'Donovan, C. : May Not Vulvovaginitis be Acquired by Children Indirectly? (*The Journal of the American Medical Association.* Vol. xxxiv., No. 11.)

It seems impossible to accept direct contact as a cause of infection in all cases. The disease is often spread by means of towels and contaminated articles, and in institutions by toys that are handled by a great many children. Cases of vulvovaginitis are refractory to treat as they improve up to a certain point, but a slight discharge containing the gonococci will persist for a long time. Pads of cheese-cloth should be worn to keep the vulva protected so that the fingers and hands are not contaminated.

Locally solutions of peroxid of hydrogen diluted one-half or one-third are useful. Solutions of biclorid of mercury may be used in strength from 1-5000 to 1-2000.

Osler, Wm., and McCrae, Thos. : Cancer of the Stomach in the Young. (*The New York Medical Journal.* Vol. lxxi., No. 16.)

Cases of cancer of the stomach occurring during the first twenty years of life are clinical and pathological curiosities. There are only six cases on record below the age of ten years. Not one can be positively accepted as arising after birth. A list of the reported cases is given. Some of these cases are doubtful in character. Some resemblance to malignant disease of the stomach is borne by hypertrophy of the pylorus in infants.

Two of the conclusions of Mathieu are quoted:

1. Cancer of the stomach below the age of thirty has generally a rapid progress in some months, and often ends suddenly by incidents more or less abrupt.

2. Early cancer is not latent—it is often overlooked.

Garrison, H. E.: The La Grippe Exanthemata. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 11.)

The subject of the eruptions seen in epidemics of la grippe is important as in connection with scarlet fever and measles it may be most confusing.

In an epidemic of la grippe three varieties of eruption were seen, the rubeola form, the scarlatina form, and a papilla vesicularies. The eruption was not contagious and was regarded as a sequela of the grip.

Some of the cases had the appearance of scarlet fever and there was desquamation.

v. Szontagh, Felix: An Unusual Occurrence Following the Injection of Diphtheria Antitoxin. (*Archiv für Kinderheilkunde.* Band xxviii., Heft 5 and 6.)

A girl, twelve years of age, was taken ill with diphtheria of the fauces, and as the case seemed to be quite severe, antitoxin was used on the second day of the child's illness. The serum, three thousand units of which were injected under the skin over the left and right lower portion of the thorax, was, according to the label, six weeks old. Within forty-eight hours the child was free from fever and the membrane showed the usual appearance of beginning recovery, although the lymph nodes of the neck, especially on the left side, had increased in size. Five days later the pharynx was free from membrane, but the child had spent a very restless night, having been in a state of excitation such as the parents had never before witnessed in her. Her temperature fell to 96.8° F. She complained of feeling chilly and her feet were extremely cold. After four days there was another slight elevation of the temperature, which was thought to be due to some trouble in the lymph nodes of the neck, which began to swell once more and became very painful. Ice was applied continuously for four days and caused disappearance of the swelling and pain, without, however, affecting the temperature, which kept up for two weeks with evening rises to 99° and 101° F. Ten days after the antitoxin injection an urticaria started from the points of injection and extended gradually over the greater portion of the patient's body. During all this time the girl became very irritable and possessed of a peculiar restlessness. The urticaria rash had disappeared in a few days, but patient complained now of excruciating pains in the lower extremities, especially in the knee joints. Her general condition became very alarming, getting worse from day to day. The pain spread over her entire body and she lay in bed motionless. The facies was that of complete prostration, the conjunctivæ and sclerotics were markedly injected, the entire neck edematous, the carotids pulsated and the pulse was tense and 120-130 per minute. The heart-sounds and cardiac dulness were normal.

The slightest touch to the skin caused intense pains; the joints, especially the knee and ankle joints were swollen, and for two days both feet were very edematous. The lower extremities were held in the position of moderate abduction and complete extension, when there was no swelling in the knee joints. When there was swelling the legs were slightly flexed, and the thighs rotated outward. When the pains were less severe the patient could be persuaded to slightly move the toes, but she was unable to lift the leg. When she attempted to do so, a severe tremor started in the distal end of the extremity, resembling very closely that of spastic spinal paralysis. Decubitus was dorsal and the child was unable to change her position. The upper extremities were less affected, and the girl was able to execute some movements. The only swelling noticed was in the interphalangeal articulations. Profuse perspirations affecting especially the lower extremities, anorexia, constipation and emaciation completed the clinical picture. The urine was always free from albumin.

Sodium salicylate, phenacetin and antipyrin controlled the pain with more or less result, as there seemed to be a tendency for the affection to remit. These remissions were followed in quick succession by exacerbations. Large doses of potassium bromid seemed best to relieve the restlessness and insomnia. At the end of a month the patient began to show signs of improvement, her strength returned, with the power to use her limbs. In another month she was able to get out of bed, and in four weeks more she was well.

Szontagh had used antitoxin in all his cases of diphtheria since the discovery of the serum and he had never seen dangerous after-effects except in one other case, strangely in a nine-year-old cousin of the patient whose history he relates. This girl, suffering from hemophilia, was taken sick with diphtheria for which antitoxin was used, and during her convalescence she also suffered from an eruption resembling measles, swelling in both knees and severe pains in the lower extremities.

This condition lasted five days and seemed to be benefited by the administration of phenacetin.

Fisher, T.: Swelling of the Eyelids, with Intermittent Albuminuria in Children. (*The British Medical Journal.* No. 2050.)

The children who showed the intermittent albuminuria ranged in age from three to ten years. The history was almost always indefinite, but indicated weakness, lethargy and anemia. The prominent symptom was the swelling of the eyelids. The urine had to be examined a number of times to show the presence of the albumin. Scarlet fever did not seem to be a factor in these cases. It is a question whether or not this intermittent edema is the beginning of the small white kidney. It

may be possible that vaso-motor instability, or defective metabolism is a cause of the occasional presence of albumin in the urine and of swelling of the eyelids.

[No note of the presence of casts or other kidney *debris* in the urine accompanies the histories of these cases.]

Josephson, J. C. : A Case of Iodoform Poisoning in an Infant Two Weeks Old. (*Medical Record.* Vol. lvii., No. 15.)

A baby was circumcised, but the wound did not heal well and iodoform was applied in an ointment. The baby became comatose and cyanosed, with feeble, but stridulous breathing and retraction of the abdomen, evidently from the laryngeal spasm. There was also a severe local eczema. As some of the symptoms resembled opium poisoning belladonna in minim doses was given every hour. The baby recovered rapidly and the eczema improved over night.

The case was regarded as similar to some mentioned by Wood where iodoform poisoning cause symptoms similar to opium.

Egis: Multiple Neuritis Following Scarlet Fever. (*Archiv für Kinderheilkunde.* Band xxviii., Heft 5 and 6.)

The only other case in literature is one described by Seifert. The case now reported was a girl four years of age who was admitted to the hospital two months after the appearance of the scarlet fever eruption. During the fifth week of the disease ataxic gait had been observed. Eighteen months previously the child had passed through an attack of diphtheria followed by paralysis. When examined desquamation was still going on on the soles and the toes of both feet. There was paralysis of the two peroneal nerves, disturbances of coordination in all extremities and ataxic gait. There was also diminished electric excitability, especially of the ulnar and peroneal nerves, absence of the patellar reflexes and pain in the course of the affected nerves. No anesthesia, no pupillary changes and no paralysis of the faucial muscles. The action of the sphincters was normal. There was also a rhythmical tremor of the head and the extremities. All internal organs seemed to be normal. The child was kept in the hospital for seventy-eight days and during this time all the symptoms referable to the nervous system disappeared. Last to return were the reflexes and the electrical excitability. The treatment employed consisted of massage, warm baths, and the administration of $\frac{1}{100}$ grain of strychnin daily. Later doses of arsenic and strychnin were given. The case is interesting not only on account of its etiology but also by the presence of ataxia of peripheral origin without loss of sensation in the skin. After careful analysis of the symptoms the author arrives at the conclusion that the disease was organic and not functional in

character and that the main symptoms admit only of the diagnosis of multiple neuritis. The tremor he explains as a hysterical phenomenon.

Muratow, in a discussion of the paper, draws attention to the fact that this case confirms the existence of an acute ataxia of polyneuritic origin. As to the etiology of the case he recalled the fact that the girl has had a diphtheritic paralysis about a year and a half previous to her attack of scarlatina, and that patients who have passed through one attack of neuritis are liable to have another, and that of all causes that have a tendency to bring about a recurrence, infection was entitled to the first position. He therefore considers the case under discussion one of recurrent neuritis caused by scarlet fever.

Thornton, B.: A Case of Glandular Fever Associated with Erythema Nodosum. (*The British Medical Journal.* No. 2050.)

The clinical history of glandular fever is fairly familiar, but the causation still remains obscure. The association of the disease in one case with erythema nodosum suggests that rheumatism may have produced both the enlargement of the lymph nodes and the erythematous nodules.

A girl of five and a half years was found to have a mitral systolic murmur. Later she was taken suddenly ill with stomach ache, severe pain in the neck and enlarged lymph nodes. The temperature was 102° F. The throat was not inflamed. The following day the temperature was 104° F., and all the lymph nodes of the neck were enlarged. On the fourth day there were erythematous papules on the legs. By the eighth day they had developed the characteristic nodules of erythema nodosum. Convalescence was slow. The debility and anemia were persistent. The temperature remained elevated for twenty-six days. The persistence of the anemia and the debility are special features of glandular fever and also of acute rheumatism. Sodium salicylate had no apparent effect.

Bringier, J. T.: A Case of Acute Hypertrophic Cirrhosis of the Liver in a Boy of Seven Years. (*Philadelphia Medical Journal.* Vol. v., No. 22.)

A boy, seven years old, had abdominal distention, slight jaundice, and area of dulness that increased downward.

Despite conservative treatment and exclusive milk diet, he grew progressively worse. He was seized with convulsions that continued without intermission to the time of his death, three hours after their onset. During the second and third weeks of the illness the jaundice became more marked and the abdominal distention greater, but at no time did he require to be tapped. At this stage of his illness the lower border of the liver extended as far down as the crest of the ilium. There was also

complete stenosis of the gall-ducts with obstinate constipation. There was never any rise of temperature. He took nourishment well, slept well, and complained of no pain.

This boy's father died of hepatic cirrhosis (alcoholic) when the child was but a few months old. There was no history of syphilitic disease. The child had been in perfect health since he was a year old.

Buchanan, Leslie: Optic Neuritis in Children; A Clinical Note. (*The Edinburgh Medical Journal.* Vol. vii., No. 5.)

Several cases of optic neuritis were seen which at first seemed puzzling, as the children gave no evidence of bad health. It was observed that almost all such cases showed more or less enlargement of the cervical lymph nodes.

In the cases at present under consideration, the change is a distinct optic neuritis, not, as in those of refractive type, a chronic congestion with, it may be, a certain amount of edema and perivascular exudation; the nerve is almost invariably enlarged, and when it atrophies it leaves not a small but a large white nerve. In children optic neuritis is not at all common; but it may follow several conditions without being observed, such as the exanthemata, acute rheumatism, etc. The disease in which the change is most often looked for and found is meningitis of tubercular origin. It is likely that the enlarged lymph nodes are tubercular. Putting the two facts together, the author has come to the conclusion that in many of the cases the cause of the optic neuritis is, or has been, a meningitis, tubercular in origin and mild in type. From the histories of many published cases it is reasonable to suppose that optic neuritis is indicative of tubercular rather than of simple meningitis.

The author states that he wishes to leave the impression that unless another cause can be found, if either atrophy or inflammation of both optic nerves is seen in a child or young person, the presence in the neck of enlarged lymph nodes, even of very moderate size, is an indication that there may have been, or may be, a meningitis or a tubercular growth in the brain.

Burt, S. S. : A Case of Acute Yellow Atrophy of the Liver. (*The Lancet.* No. 4003.)

A girl of thirteen years gave the following history:]

Her father was insane, but otherwise the family history was negative. The patient had had measles and diphtheria; she had cervical adenitis when she was a baby. She had had facial erysipelas and soon afterward suffered from chills and fever; she had never had rheumatism. For several years she had had shortness of breath on exertion, which had steadily increased. One year before admission the abdomen began to swell, and it had continued gradually to grow larger. There had been puffiness under the eyes, and the legs had been edematous. The nose

had bled a number of times, and now and then bleeding from the ears and gums had occurred. The appetite was good and the bowels were regular. She had been slightly jaundiced for six or eight months; this yellow discoloration of the skin had recently increased. The urine was acid; specific gravity was 1015, the color was red, and the sediment resembled brick-dust. A trace of albumin was found, but no sugar. There were a large number of granular and epithelial casts, renal epithelium and bacteria in large numbers. Later there were blood-casts in abundance and a large amount of blood. There is no record of the presence or of the absence of leucin and tyrosin.

Physical examination revealed the presence of mitral insufficiency; the area of cardiac dulness was increased with diffused apical impulse. The abdomen was distended with fluid, the liver was enlarged, and superficial veins were prominent. The spleen was not made out. The lower extremities were edematous. Fifty-seven ounces of fluid were withdrawn from the abdomen by an aspirator. Ten days later a small incision was made in the median line in the abdomen, a drainage-tube was passed into the abdominal cavity and 54 ounces of fluid were removed. The tube was left in for permanent drainage. Notes were made recording the recurrence of frequent hemorrhages from the mouth. There was vomiting. The temperature was normal, except during the retention of the drainage-tube.

One month after this the lungs were examined with a negative result; the liver was decreased in size and the spleen was enlarged; the patient was deeply jaundiced. The ascites and edema had disappeared; the temperature was normal. For the next three or four days the patient was up and about and even went down from the ward to the clinic. There was epistaxis. The decrease in the size of the liver and the increase in the size of the spleen were more pronounced; the vertical measurement of the liver was three inches in the right mammillary line. The action of the heart was weak. The mental condition was reported as dull, stupid, and, finally, semi-comatose. Three days later it was noted that she had vomited during the previous night and that she had been very restless and noisy. During that day she was continually rising and trying to get out of bed. Her pulse was 116 and her temperature ranged from 100° to 102° F. The tongue was dry and reddish brown in color; sordes was on the lips and teeth. The heart was weak and rapid. The liver decreased in size almost to the point of entire disappearance. The jaundice seemed to be even deeper than it was before. There were involuntary movements of the extremities, hemorrhages from the mucous membrane of the mouth and vomiting. The patient died. An autopsy was not granted.

In connection with the possible cause of an infection in this case there might be a connection between the drainage-tube which was used for ascites and the fever which existed while the tube was in place. The case is of rarity and interest.

Weber, F. P.: Notes on a Case of Purpura, with Remarks on the Nature and Visceral Complications of Cases of Purpura. (*The British Journal of Dermatology.* Vol. xii., No. 3.)

A young man seventeen years old had an attack of fever with shivering and pains in the limbs. Some parts of the skin became red and itched. He was so weak that he could hardly walk. There were symmetrical purpuric patches about the eyes. There was subconjunctival ecchymosis in the right eye, but there was no hemorrhage at the back of the eye. There were no hemorrhages in the mucous membrane of the mouth and the gums were not swollen or bleeding. The heart was normal and the sounds were soft. There was some bronchitis but no dulness. The sputum contained blood. The liver and spleen were not enlarged. The movements from the bowels did not contain blood. The urine was negative.

Two weeks later there was further purpura and the skin over some of the ecchymotic patches had ulcerated. The urine contained albumin. The patient became gradually weaker. There was dulness at the base of the right lung and there was an effusion into the pleural sac. There was edema of the legs and also some ascites. The temperature was irregular, 100° F. to 102° F. The urine contained albumin and casts. Diarrhea became troublesome.

Stimulants were given, but did not seem to have any effect. The patient's diet was a mixed one, milk, eggs and green vegetables. Chlorid of calcium was tried. Treatment was unavailing and the boy died five weeks after admission. No autopsy was obtained.

The evidences of rheumatic were not sufficient to allow of the term "rheumatic purpura." Purpuric eruptions occur in a variety of affections besides rheumatism, notably in septic inflammations and in cases of pulmonary tuberculosis. In cases of pulmonary tuberculosis the gravity of the purpura may vary much, and in some cases the hemorrhagic eruption may indicate a grave toxemia or septicemia.

The other causes, such as depressed vitality, exposure to cold, gastrointestinal disorders and the influence of drugs are well known. The case reported is of interest in connection with the diffuse nature of the cutaneous ecchymoses and sloughing.

In a girl of eight and one-half years who had purpuric petechiæ scattered over the body and retinal hemorrhages, very distinct systolic and diastolic murmurs were heard during life, but no distinct change was found in the valves at autopsy, but the heart showed a great degree of the so-called "tabby-cat striation."

Valvular affections of the heart seem to be among the rare visceral complications of exudative erythema. Nephritis is one of the commonest and may be one of the most dangerous complications. Dilatation of the stomach has been reported as a result of the cachectic state.

HYGIENE AND THERAPEUTICS.

Kinch, C. A.: Tinea Favosa. (*The New York Medical Journal.* Vol. lxxi., No. 11.)

In an article dealing with the general topic he states that, besides direct contagion from man to man, the disease is often spread from animals to man. He advocates persistent and repeated epilation and brisk rubbing into the diseased surface of a watery solution of corrosive sublimate (0.005 to 0.008). This application produces some inflammatory reaction. It should not be intrusted to the patient. In the intervals he may apply at home some parasiticide ointment or, if there is much itching, an antipruritic. In the former class may be mentioned dilutions of the various mercurial ointments and of sulphur ointment; in the latter, those containing tar, chloral, camphor, or carbolic acid. The fungus is anaerobic, and it is not possible to smother it in grease. But oily preparations are beneficial to the growth of the hair, especially those of the paraffin series. Chrysarobin and pyrogallol have been extensively used and highly recommended, but they are objectionable on account of staining; and if the former gets too near the eyes it will produce an acute conjunctivitis.

Favus in the human subject is often associated with adeno-pathology and an impairment of the general health. Reconstructive internal remedies, such as iron, arsenic, cod-liver oil and bitter tonics, are therefore indicated. Fresh air, sunshine and cleanliness are essential elements of successful treatment.

The cure of favus is perfectly feasible. When it affects the epidermis or the nails this is comparatively easy. But the treatment of chronic invasion of the scalp must be protracted, and relapses are very apt to occur.

Bartley, E. H.: Some Points in the Chemistry of Cow's Milk With Reference to Infant Feeding, With a Description of a Method for Home Modification of Cow's Milk. (*The Brooklyn Medical Journal.* Vol. xiv., No. 5.)

In preparing cow's milk as an artificial food for an infant, milk sugar can be added and the amount of proteids reduced. Sometimes this reduction of the proteids lessens the strength of infants fed on the mixture, and experience shows that soluble albumin, such as the white of egg can be added to milk after dilution.

It is possible that there are differences in the digestion of egg albumen and lactalbumin but there are few data. Egg albumen is a suitable dilutant for cow's milk and is useful to bring the proteid percentage up to the standard.

The nuclein of cow's milk contains more phosphorus than human milk so that the stools of infants fed on cow's milk show

much more organic phosphorus. The intestines are therefore more easily disturbed. As nuclein is rapidly decomposed by boiling and heat food that is condensed or sterilized has a lessened nutritive value.

Pasteurization has less effect on nuclein as the changes in it are not rapid at a temperature of 155° F. There can be no question but that rachitis is caused by the changes in the nuclein when milk is heated at a high temperature. Any attempt to treat rachitis by the administration of inorganic phosphates must be futile, but the use of the yoke of egg will furnish the system with an abundance of assimilable organic phosphorus.

With reference to the use of dextrin and maltose there can be no question but that they replace fat and sugar, but in the long run they cause disturbance of nutrition.

In order to overcome the indigestibility of fat that has stood as cream for some time, the cream should be as fresh as possible without free access to air. Milk laboratories have done little if any better than can be done at home.

Sterilization melts the fat and destroys the emulsion. It dehydrates and partially decomposes the sugar. It coagulates the albumin and globulin, and alters the composition of the caseinogen. It rapidly destroys the paranuclein and lecithin, and converts the organic phosphorus, which can nourish the tissues, into inorganic phosphates, which cannot nourish tissues and is lost in the feces. Children fed exclusively upon sterilized milk will sooner or later show signs of rachitis.

It is unnecessary, as the temperature of 155° F., the pasteurizing temperature, is above the thermal death point of all pathogenic organisms likely to occur in milk. The one exception is the spores of the tubercle bacilli, which, according to some experiments, are not killed by boiling.

To prepare cow's milk for an infant the lower milk is siphoned off, essence of pepsin is added and the milk gradually heated to a temperature of 155° F. After straining and the addition of milk sugar and white of egg this whey mixture is added to the cream and top milk from which it was siphoned.

Netter: Curability of Suppurative Cerebrospinal Meningitis. (*La Presse Médicale*, 1900. No. 39.)

Lumbar puncture has provided a means of accurate diagnosis of meningial lesions, so that it is no longer possible to doubt the accuracy of the statement that cases of meningitis are curable. All the forms of simple meningitis may recover; and, while the serous and serofibrinous varieties usually end in cure, recovery from suppurative meningitis is by no means exceptional. Thus Netter is able to report 7 cases of suppurative meningitis (seen since May, 1899) which recovered. The diplococcus meningitidis of Weichselbaum was cultivated from

the fluid obtained by lumbar puncture in every case, the fluid being cloudy and having a sediment of pus. The puncture was repeated from one to ten times throughout the course of the disease, the fluid containing fever bacteria in the later punctures and sometimes remaining sterile. Improvement was marked within three to four days in some cases, in ten to fifteen in others; while in one case the disease lasted two months, and more than three months in another. Rigidity of the neck was the predominating symptom in all; ocular paralyses were frequent and were cured perfectly. One child retained some trouble with her hearing, the final outcome of which cannot, as yet, be foretold. The good results are to be attributed above all else to the systematic use of warm baths (38° to 40° C.) given every three or four hours, day and night, and lasting twenty to thirty minutes. In order to sustain the strength, subcutaneous injections of serum were given when the children took food badly. The treatment was used in 11 cases, 7 recovered, and of the 4 who died 1 was brought into the hospital in a moribund condition.

Hatfield, M. P. : Measles and its Treatment. (*The Medical Standard.* Vol. xxiii., No. 4.)

In an article on the general subject are the following directions for quarantine and treatment: The disease is highly contagious from its very onset. The contagion does not appear to possess the vitality of scarlet fever, for its potency is short-lived and does not persist in infected clothing, books and rooms as do the germs of scarlet fever; but, on the other hand, fewer children escape than in the case of scarlet fever. The entire course of an uncomplicated case of measles from exposure to recovery ought not to exceed three weeks, though it is safer to allow four weeks for quarantine. When there is persistent bronchitis, pharyngitis or discharge from the ear or nose, the quarantine should be continued until the complication ceases. It should be remembered that measles is highly contagious from the very beginning of its catarrhal symptoms, and its contagiousness seems to be in direct proportion to the severity of the catarrh and its persistence. Quarantine is not usually long enough.

The chief duty is to keep patients warm in bed and watch for threatened complications. There is a great dread of cool drinks during the feverish stage, but the author never seen any ill effects from allowing cool—not iced—lemonade or flaxseed tea with lemon. A temperature of 103° to 104° , with accompanying headache, can be greatly alleviated by two or three grain doses of phenactin or lactophenin.

If necessary minute doses of codein may be given to relieve the harassing cough. Cod-liver oil with syrup of iodid of iron

should be used wherever enlarged bronchial lymph nodes are suspected, and persisted in until the tendency to recurrent colds is overcome.

Shurley, B. R. : Antitoxin and Intubation, with a Report of 100 Operations. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 20.)

From a study of the results of antitoxin treatment in laryngeal diphtheria and the benefits of intubation, the conclusions and rules of procedure are presented.

1. Administer antitoxin early without waiting for a bacteriologic diagnosis.

2. Tonsillar exudate attended by a croupy cough or partial aphonia is an indication for a full dose of 1500-2000 units of antitoxin.

3. Antitoxin administered twelve hours or more prior to operative interference will reduce the mortality of intubated cases at least 50 per cent.

4. Immunize all exposed children of croup age.

5. Continuous steam inhalations are of great value in all cases.

6. Early operation is most strongly advocated.

Number of intubations, 100; recoveries, 69; deaths, 31; mortality under three years, 49 per cent.; mortality over three years, 19 per cent.; complicating measles, 8 cases, 5 deaths. Age of patients operated on: One to two years, 16, of whom 9 recovered, 56.25 per cent.; two to three years, 23, with 11 recoveries, 47 per cent.; three to four years, 20, of whom 16 recovered, 80 per cent.; four to five years, 15, of whom 12 recovered, 80 per cent.; five to six years, 11 cases, with 10 recoveries, 90.9 per cent.; six to eight years, 10, of whom 7 recovered, 70 per cent.; eight to twelve years, 5, of whom 4 recovered, 80 per cent.; number of doses of antitoxin, 160.

Hofmann, A. : The Part Played by Iron in Blood Production. (*Virchow's Archiv.* Vol. clx., No. 2.)

The form in which iron is administered matters little. It is absorbed in the duodenum, and circulates in the blood in combination with an albuminous substance, carried by certain transporting cells. These can be demonstrated in large numbers in the marrow, as well as in the liver and spleen. The red blood cells are increased rather more quickly than is the hemoglobin during the period of iron administration, and it seems that the metal has a physiological action upon bone marrow, stimulating the young forms of cells to mature and enter the blood as non-nucleated erythrocytes. Iron preparations other than the pure metal and ferratin are superfluous, and hemoglobin preparations are irrational, since it is only upon the

amount of metallic iron which is reserved that the effect depends.

This stimulating action of iron upon the marrow gives an insight into the nature of chlorosis, in which condition iron acts so well. Chlorosis probably is a condition of temporary lack of ability on the part of the bone marrow, a blood producing organ, manifesting itself only at puberty, or a congenital hypoplasia, lasting throughout life. In severe cases it may be accompanied by hypoplasia of the blood carrying apparatus and even of the genital tract. This weakness on the part of the marrow is evidenced by a production of erythrocytes, which are pathological in form, and in the amount of hemoglobin which they carry.

Floeckinger, F. C.: Clinical Observations on Heroin and Heroin Hydrochlorid, as Compared with Codein and Morphin. (*New Orleans Medical and Surgical Journal.* Vol. lli., No. 11.)

Experiments made by Dreser show that ten times as much heroin as codein is required to produce toxic effects in animals. The hydrochlorid of heroin is preferable to heroin, as the former is not decomposed by the acid in the stomach.

In pediatric practice especially, the hypodermatic use of heroin hydrochlorid is most advantageous. He has employed it with excellent results. The administration of heroin in solution with acetic acid often provoked gastric disturbances, especially in nurslings. After the introduction of heroin hydrochlorid he made use of this preparation in watery solutions, and he has not seen a case in which gastric disorder took place. The single dose in children varies according to the age, but it should not exceed one-twelfth grain in children under ten years; the best way is to begin with small doses and gradually increase.

Whyte, J. M.: The Treatment of Tapeworm with Chloroform. (*The Scottish Medical and Surgical Journal.* Vol. vi., No. 3.)

There is no ideal anthelmintic. Theoretically nothing could be simpler than the use of chloroform. A girl of twelve years was given a dose of 20 minims made up with half an ounce of glycerin. The dose was preceded and followed by evacuants and the result was successful without any disagreeable after effects. The head was not found, but there was no reappearance of the tapeworm.

A boy, aged nine years, was given 20 minims of chloroform which had no effect whatever. As it was supposed the preparation was improperly made. Thirty minims of chloroform were given from another druggist. The boy went to sleep in three minutes and slept for an hour and a half. He expelled

most of the worm, but not the head and male-fern had to be used.

Of 6 cases treated with chloroform only one was successful.

Leichtenstern gave chloroform in 13 cases of *Tænia medio-canellata* with one success. In most of the cases there was no disagreeable effects apart from occasional headache, giddiness or sickness. In some cases there was a deep sleep and in 2 cases there was such severe collapse that the patient's life was despaired of. The chloroform acts better on the *Tænia solium*. The use of chloroform is accompanied by considerable risk, and it is ineffective. Male-fern is a much safer and more satisfactory anthelmintic.

Fracture of the Neck of the Femur in Children.—Whitman reports (*Annals of Surgery*, February, 1900) 18 cases in children between the ages of two to sixteen. The physical characteristics of this injury are shortening of the limb of one-half to three-quarters of an inch with corresponding elevation of the trochanter and slight outward rotation of the leg. For several weeks or months there may be discomfort on manipulation, but when repair is complete the range of motion is not restricted or slightly limited, and a slight limp is the only symptom. Until recent years this injury was supposed to be confined to adults. In many instances patients are able to walk about within a few days, thus it may be inferred that the separation of the fragments is incomplete, and that the fracture is rather a bending than a displacement. Discomfort or pain during the stage of repair is very often mistaken for hip-disease. Röntgen pictures show depression of the neck as a whole rather than at the epiphyseal junction. Whitman has also seen 30 cases of coxa vara (which is, practically speaking, fracture of the neck of the femur) in children, but in many instances there may be inherited predisposition to the deformity or slight depression may result from rachitis. Reports are given of 6 cases and all but one of these were treated by operation. The first essential is the restriction of abduction, whether of ligamentous or muscular origin, before operating on the bone. A wedge of bone about three-quarters of an inch in breadth is usually removed opposite the trochanter minor, the leg is held in extreme abduction by means of a plaster-of-Paris bandage, which should also include the foot, until union is firm. In case of fracture of the neck of the femur it is sometimes possible to replace the neck to a certain degree by forcing the limb into extreme abduction and fixing it in that attitude by plaster-of-Paris bandage or other appropriate apparatus; during consolidation an ordinary traction splint is applied.—*Philadelphia Medical Journal*.

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Original Communications.

ACUTE NEPHRITIS FOLLOWING INFLUENZA.*

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Among the organic lesions which may complicate influenza one of the rarer is nephritis. A simple albuminuria during the height of a severe attack of influenza is not uncommon. Senator reports having seen albuminuria in 18 of 52 cases. Brandes has seen it in 23 of 27 cases. Teissier in 50 per cent. of cases. Concerning the frequency of the occurrence of albuminuria in children, I have no exact data, but Holt states that most cases of influenza with high temperatures have albuminuria. Krunhals and others have observed hematuria renalis several times.

RÉSUMÉ OF RECORDS OF CASES OF NEPHRITIS COMPLICATING INFLUENZA.

Recent articles on influenza in general medical works, which deal with adults as well as children, make little mention of nephritis complicating influenza. On the other hand, Gmeiner, in a review of about 400 cases, finds that 1 per cent. of his cases had acute nephritis.

Finkler states that nephritis is not a frequent complication of influenza.

In the German Army Reports only 10 cases of severe kidney inflammation were found in 55,263 cases. Lichtenstein had 2 cases of acute hemorrhagic nephritis in 439 cases.

In Bavaria, Finkler states, nephritis seems to be a more common complication, and a number of observers there mention acute nephritis of the hemorrhagic type.

A case with autopsy reported by Leyden occurred in a seamstress, twenty-five years of age, of previous good health.

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

REPORTED CASES OF NEPHRITIS COMPLICATING INFLUENZA.

No.	REPORTED BY	AGE.	SEX.	DURATION OF INFLUENZA BEFORE NEPHRITIS IN DAYS.	QUANTITY DAILY.	ALBUMIN.	BLOOD.	CASTS.	EDEMA.	DURATION OF NEPHRITIS IN DAYS.	TERMINATION.
1	Danforth.	65	Male.	7		Much.	Yes.	Blood Hyaline.		28	Recovery
2	Leyden.	25	Female.	35	3 oz.	Much.	"			30	Death.
3	Russell.	Young woman.	"	Early.	Dim.	Yes.	"	Yes.		Few weeks.	Recovery
4	"	"	"	"	"	"	"	Blood.			
5	Mosler.	17	"	28	Dim.						Death.
6	Fliessinger.	16	Male.			Yes.	"	Epithelial.	No.	8	Recovery
7	Krunhals.	15	"	8						28	Recurrence after 6 weeks which lasted 6 weeks.
8	Sympson.	11	"	16		Yes.	"		Yes.	30	
9	Fraser.	9	"	2	Dim.	2%	"		Slight.	26	"
10	Fliessinger.	8	"	4				Epithelial.	Yes.	14	"
11	Freeman	4	"	30	Dim.	Small amount.	"	Blood and Epithelial.	No.	10	"
12	Fliessinger.	3	Female.	23				Epithelial.	Yes.	17	"

{ Autopsy, kidneys large and congested. Glomerular Nephritis

She became sick with violent headache, slight difficulty in hearing, and since then had never been perfectly well. She became weak and miserable and had anorexia. A month later she had violent vomiting, lasting eight days. Urine scanty and turbid, edema present. She died at the end of the second month. There was no fever. She passed only about three ounces of urine a day. The urine contained blood and albumin.

Autopsy.—Kidneys large and congested; on microscopic examination a glomerular nephritis of the type found in scarlet fever was present.

Nephritis complicating influenza, although apparently much more common in children than in adults, receives slight attention in pediatric works. Thus, the possibility of the occurrence of nephritis complicating influenza is not mentioned in many recent text-books on diseases of children.

Earle mentions nephritis; Gillet emphasizes it, stating that it may be serious and of the congestive type, as indicated by hematuria; and Holt states that a few examples are on record.

I have been able to find altogether only 17 cases, both of adults and children, of nephritis complicating influenza and concerning only 11 of these cases have I obtained clinical data. These 11 cases I have tabulated with the case I report. This number, 12, is perhaps rather small to form the basis of conclusions, but still this group presents certain interesting features.

It is noteworthy that all but one of the cases, of which I have clinical data for this tabulation, are in children or young adults, and five are in children under twelve years of age, the youngest case having been three years old.

The clinical type of the kidney disturbance, the acute hemorrhagic type, is apparently similar in at least seven of the eleven cases. Seven of these cases occurred in males and five in females. The nephritis may occur early in the course of the influenza or long after the acute stage. Thus of the ten cases in which this date is stated, the second day is the earliest, the thirty-fifth day the latest, the average being the fifteenth day.

The duration of the nephritis, which is definitely stated in nine cases, was but eight days in the shortest case and thirty days in the longest cases, giving an average of nineteen days' duration.

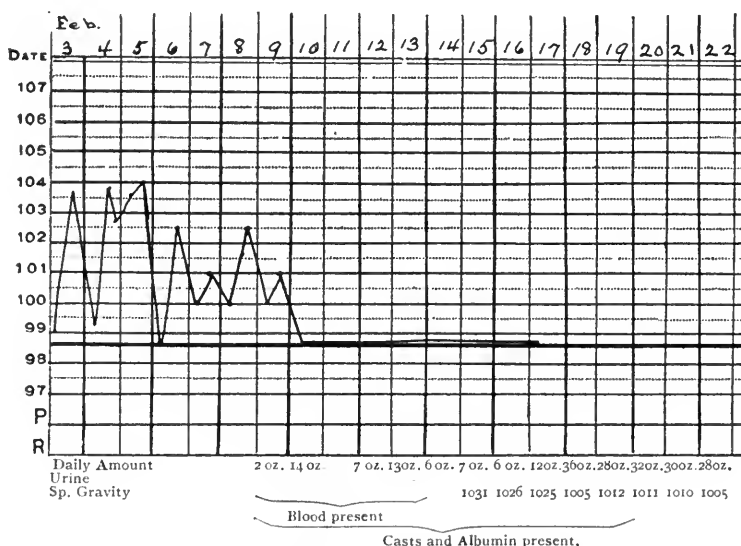
The daily quantity of the urine was in several cases remarkably diminished, albumin was present in varying amounts, and

blood and casts of different sorts are in most cases noted as having been present. Two of these cases showed no edema while a third showed a slight edema.

The prognosis in nephritis complicating influenza as indicated by the cases I have selected is good, ten of them having recovered and only two having died.

Although the pathological change in the kidney is reported in only one of the tabulated cases, I have records of the examination of 6 cases.

Of these 4 show parenchymatous degeneration; 1 shows parenchymatous degeneration, with fatty degeneration; 1 shows glomerular nephritis.



TEMPERATURE CHART AND PARTIAL RECORD OF EXAMINATIONS OF THE URINE IN A CASE OF INFLUENZA WITH COMPLICATING NEPHRITIS.

My own case is a boy, four years of age, who has for the past three years suffered each winter from an attack of influenza. The present attack began about January 1, 1899, with the ordinary catarrhal symptoms, prostration, fever, and moderate attacks of earache of a few hours' duration, but at no time was there any discharge from the ear. On January 31st he had a temperature of 102.5° F., the highest temperature being 105° on February 5th. The temperature gradually diminished, making an irregular curve, so that by February 9th it

varied between 100° and 101°. On this day the child passed some very red urine. The urine had previously been examined on February 4th, and then had a specific gravity of 1022 and contained no albumin and no blood. On the 6th the urine was noticed to be red, but was not examined. On the 7th and 8th it was pale. The urine of February 9th was passed in very small amount, only two ounces being recorded on the chart, and contained a considerable amount of blood, about 5 per cent. by bulk of albumin, and casts, both hyaline and containing blood cells. On the following day, the 10th, Dr. W. P. Northrup saw the child with me and made an unqualified good prognosis. The temperature on this day reached normal and remained constantly normal afterward, but the urine continued to be passed in small amounts, varying from six to fourteen ounces a day. Blood remained present for five days and the casts for ten days. At the end of this period the casts and albumin disappeared and the urine was excreted in the normal daily amount of about thirty ounces. There was absolutely no edema. The child did well and has had no recurrence of albuminuria during the following year.

An interesting phenomenon took place two months later, after a slight disorder of the bowels, with diarrhea, when the child passed no urine during one night, and the following morning passed about half an ounce, which was very red and contained considerable deposit. This urine had a specific gravity of 1050, contained no albumin, casts or blood, but abundant urates and phosphates.

This child, then, had an acute nephritis of the form which, judging from the data at hand, appears to be the most common clinical type in the nephritis complicating influenza and made a good recovery.

Conclusions based on a very limited number of cases:

1. Although albuminuria is fairly frequent with influenza, nephritis is a rare complication.
2. The nephritis complicating influenza is clinically of the acute hemorrhagic type and morphologically shows toxic lesions.
3. It apparently attacks children more often than adults.
4. The kidney disturbance may appear a few days after the acute symptoms of the influenza, or as long as a month later.
5. The prognosis is good.

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DISCUSSION.

DR. FRUITNIGHT.—Nephritis is very rare as a complication of influenza. I have a record of 57 recent cases of influenza. I found a trace of albumin in only 1 case, the urine had a specific gravity of 1012, the quantity was less than fourteen ounces. In a few days the albumin had disappeared. I attributed the albuminuria to the febrile condition, just as we see albuminuria so often in simple febrile conditions. In 57 cases, if it were at all common, more cases of nephritis should and would have occurred, and in this only instance in which albumin was present I would consider the case one of transitory albuminuria rather than one of nephritis.

DR. DORNING.—Nephritis seems to be a rare complication of influenza, and I think Dr. Freeman's presentation of the subject will stimulate us to examine more carefully our cases of influenza in children. I have had 3 cases of acute nephritis complicating influenza in children, 2 of them in the same family. In 2 cases no attention was given to the urine until one child showed some edema of the face. The urine showed about 30 per cent. of albumin and a large number of blood casts and epithelial casts. It was for three weeks before the casts and albumin entirely disappeared. Another child, four years old, showed edema of the face some two weeks later. In that child's urine was also found some epithelial casts and some blood casts. In a few days the urine cleared and the child seemed perfectly well. In another family a boy of four years showed a very pronounced form of nephritis. After I had discontinued my visits to the family the mother brought the little fellow to my office stating that his face had been swollen for a few days but the swelling had disappeared. The day before she brought him to the office the swelling had reappeared and extended over the whole body, including the scrotum and pre-

puce. I found epithelial casts, blood casts and some hyaline casts, and about 50 per cent. of albumin. The little fellow complained of headache and loss of appetite, and these were all the symptoms. That case occurred six weeks ago, and the urine has not cleared yet. The edema disappeared in some six days, but still the urine contains casts and about 5 per cent. of albumin. His treatment has been by baths and laxatives, and a milk diet with just enough solid food to break the monotony of the milk diet. He had plenty of water to drink.

DR. JENNINGS.—In my observation nephritis is a very rare complication of influenza, and but 1 case, and that now under observation, has come to my experience. This is a case of nephritis following a double infection, influenza appearing first, and after an interval of three or four days of convalescence an attack of measles, and then after three or four days of convalescence the nephritis appeared. I believe nephritis is also rare in measles, and it is difficult to determine which infection had most to do with the attack. The child was six years old. At the first observation the amount of urine was sixteen ounces in twenty-four hours, specific gravity 1015. An abundant precipitate of albumin and an abundant deposit of hyaline and blood casts and epithelial *debris* were the urinary findings. The urine cleared in a very short time; the blood and albumin disappearing on the third day. The granular casts persisted in few numbers for, perhaps, a week. The urine increased to twenty ounces in twenty-four hours on the third day, and to twenty-eight ounces on the fifth day, and after that time the child was convalescent. There were only two days during which any temperature was noted. The second day the temperature was 102° in the afternoon, on the third 100°. Aside from this febrile movement, there were none of the ordinary phenomena of nephritis. It was an exceedingly mild attack.

DR. ROTCH.—There is scarcely any disease in children in which the pathological conditions in the organs affected correspond so indefinitely to the clinical symptoms. It is almost impossible to make a diagnosis of any special form of renal disease in young children by means of an examination of the urine. That is, if you follow the rules which you would in making the diagnosis in adult cases. Often, for instance, we find clinical symptoms corresponding to glomerular nephritis where the pathological conditions found after death do not correspond. It is of very great importance that we should all endeavor to make notes on the pathological conditions and try to get some other symptomatology for making a diagnosis. At least this has been our experience in Boston, and the same is true, from what I can gather from the reports in other cities. The most important question is as to the form of nephritis. The acute interstitial nephritis running an acute course just as glomerular nephritis does is more characteristic in young chil-

dren than it is in adults. An acute interstitial nephritis found *post-mortem* is usually secondary to some infectious disease, such as diphtheria or measles, while glomerular nephritis is more characteristic of scarlet fever in young children. It would be interesting if we could see some autopsies following influenza. It is probable the nephritis after influenza is of the interstitial type. The last case spoken of by Dr. Dorning seemed to me to be one probably of acute interstitial nephritis, although we do not know enough about these cases yet to make a really definite statement. In like manner Dr. Jennings' case may have been an acute interstitial nephritis, although the amount of albumin would correspond more to glomerular nephritis. So far as I know a sufficient number of *post-mortem* examinations have not yet been made in these cases, and I believe that they can be determined only by *post-mortem* examinations, as it is difficult to differentiate between the acute interstitial and glomerular nephritis following infectious diseases in children. As to nephritis following influenza in children, I have seen a large number of cases of influenza, and I find that nephritis does not occur often; I therefore agree with the gentleman that it must be a rare complication. I would treat such cases as we do our cases of scarlet fever and measles, being very careful about the diet, and not taxing the kidneys.

DR. DORNING.—I would like to ask Dr. Rotch's experience in interstitial nephritis in children regarding the quantity of albumin in the urine. I have not had much experience along that line in children. In the adult we know it is not uncommon in interstitial nephritis to find a small percentage of albumin or none at all. I do not know whether Dr. Rotch lays stress on the amount of albumin as indicating an interstitial process, a glomerular involvement or an acute parenchymatous inflammation.

DR. ROTCH.—I do not think we can judge as in adults as to that. The interstitial nephritis resembles in its clinical symptoms very much the glomerular nephritis. I do not think we know enough about it yet. We have not advanced sufficiently far in our study of the condition in children. The *post-mortem* examinations do not give pathological findings corresponding to the clinical symptoms and to the examination of the urine.

DR. CARR.—A case very similar to that reported by Dr. Freeman came under my care this past winter, the only difference was perhaps that the catarrhal symptoms in the nasopharynx were followed by suppuration and perforation of the tympanum. The clinical phenomena were very much the same as those narrated. The examinations of the urine gave a specific gravity that varied between 1017 and 1022 for some time, and the urine showed a small amount of blood, blood casts and epithelial casts. What struck me most was the very small amount of albumin. At no time was it more than a trace. The child

had a limited amount of edema of the face, feet and hands. Under dietetic management and a certain amount of medication the child improved. But one of the striking things in the case was that the child suddenly developed a liking for sugar. The specific gravity of the urine went up from 1024 to 1040; the appearance of the urine did not change, and it was not dark or smoky. There was no increase in the albumin, but sugar was shown by the fermentation test. The urine improved and at the last examination, made about ten days ago, there was a specific gravity of 1007, without albumin, casts or anything pathologic. The interest in the case was to decide whether I was dealing with a child who from any cause might have had a previous attack of nephritis. I could find absolutely no trace in the urine of anything that looked like a hyaline cast or a cast of a pre-existing disease, and there was no evidence in the child's circulatory apparatus that there had been any such thing. I thought it was more than likely that there was an interstitial change, but I am inclined to reserve that opinion with a view to further developments. The case was of added interest because of the desire for sugar, the sugar in the urine and the limited quantity of albumin. I have had 49 or 50 cases of influenza in children in which I have examined the urine without finding albumin or any evidence of nephritis.

DR. CHURCHILL.—The subject of nephritis in influenza is one of the greatest importance and one to which, by the great majority of physicians, not nearly enough attention is paid. Even if physicians examine the urine at all, they examine only for albumin; and if they do not find albumin they are satisfied there is no nephritis present. My own experience is that actual nephritis in influenza is rare, but I would like to raise the question whether these cases are not often the starting point of serious renal trouble developing later along in life, either at puberty or even still later, and that we may often find trouble by more careful and exhaustive examination of the urine. We will find what you may call simply renal irritation, without possibly an actual nephritis. In a great many cases of influenza and other infectious diseases an examination of the urine shows what are known as cylindroids and not hyaline casts. These persist for months after the acute symptoms subside, although we find no albumin and the child is apparently in perfect health. These cylindroids have been regarded as evidence of renal irritation and not of actual nephritis. I have a very interesting case in a youth of nineteen, to whom I was called for an attack of appendicitis. I examined the urine, although there were no symptoms of kidney trouble, and I found a nephritis. The boy had had an attack of influenza eighteen months before, at which time the urine was not examined. He had measles at seven years, and since infancy he had had a great deal of chronic intestinal trouble. The question arose whether the nephritis had its starting point in the measles and was con-

stantly aggravated by the intestinal trouble, or in a possibly slight irritation at the time of the influenza eighteen months before I saw him. Of course, there is no way of determining this question. I think it is an extremely important point to examine the urine in all these cases to see if there be the slightest evidence whatsoever of irritation, and if we find such irritation they should be very carefully followed up for months or years until we see the disappearance of such characteristics. I should like Dr. Freeman, in closing, to state in regard to the sudden increase in the amount of urine, what the diet of the child had been before, and if any change was made at that particular time. And then, I did not understand whether he said the specific gravity was 1050 or 1015. If it was 1050, was there any sugar present?

DR. CAILLÉ.—From a clinical standpoint I make a diagnosis of nephritis when I find albumin and blood casts. Taking these as diagnostic points, I believe nephritis is rare in influenza. There is still another important point in Dr. Freeman's paper, and that is his statement that the prognosis is usually good. I have seen the most aggravated cases of nephritis in children clear up completely, and I have for twenty years had under observation individuals, who in their earlier years had nephritis and have since remained absolutely well. Their urine has been examined frequently, and they have remained absolutely well as far as the kidney is concerned. It is important to bear in mind that the most desperate cases of nephritis in children may clear up completely, and the prognosis, therefore, is not necessarily unfavorable in children.

DR. ROTCH.—I would like to add my experience to that of Dr. Caillé. The most desperate cases may get well in children. I would like to ask Dr. Freeman how much the temperature depended on the ear, and whether it is the temperature chart of nephritis or of otitis plus nephritis. I think that should be clearly stated so as not to be misleading.

DR. FREEMAN.—In reply to Dr. Churchill's question I will say the specific gravity of the urine was 1050, and there was no sugar. There have been no nephritic symptoms during the year that have elapsed since this attack. In regard to the ear as a possible etiological factor in this case, there was no evidence of otitis except the child's occasional complaint of earache. During the month preceding this attack he had at times pain in the ear, which would pass off in a few hours; but there was no otorrhea or any tenderness of the ear or any evidence of inflammation on examination with a speculum. I felt some hesitation in presenting this small number of cases and drawing any conclusions from them, still they are the result of a rather exhaustive search of the literature of the last ten years; and I have hoped that by drawing attention to this matter some other cases might be reported and we might learn more about this condition.

CONGENITAL CARDIAC MALFORMATION WITH ENDOCARDITIS AND ANURIA.*

BY A. C. COTTON, M.A., M.D.,
Chicago, Ill.

Baby G., born March 19, 1900. Family history negative. Mother, a primipara, had been in good health during gestation. She had never suffered from rheumatism. Labor was normal. Weight at birth, seven pounds four ounces; length, twenty-two and a half inches. A well-developed child, presenting no external malformations. Meconium was passed shortly after birth. Although respiration was not delayed, it was noted that the skin did not assume the usual deep red color. There was a marked pallor which persisted, changing to a grayish hue, actual cyanosis supervened gradually as a late symptom.

On the second day the temperature rose to 102.8° F.; pulse, 160; respiration, 48. Examination showed a loud, harsh, diastolic cardiac murmur which was heard all over the chest. It was impossible to locate the exact position of this murmur.

No urine was voided, and catheterization showed an empty bladder. Lactation was established on the third day. The child nursing ineffectually, the breasts were pumped and the infant fed from a tube. There was no vomiting nor any evidence of gastrointestinal trouble.

The baby was not restless nor irritable, crying only when disturbed. At no time were there any symptoms of eclampsia. The breathing steadily increased in rapidity, became labored and of a marked abdominal type. Anorexia became more pronounced, with a steady failure in muscular vigor. The child died of progressive asthenia on the fifth day, no urine having been secreted.

AUTOPSY BY PROF. HEKTOEN.—Infant G., aged five days. A well-developed, well-nourished female; the body still warm; the umbilical cord is dry and there is a line of separation around its insertion at the navel; rigor is strong; the surface of the body is livid.

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

The serous cavities of the trunk are empty, their lining smooth. The diaphragm reaches to the fifth rib.

The pharynx, larynx and trachea are normal. The thyroid and thymus are normal. The lungs are distended and contain many areas of hemorrhage, subpleural and deep-seated. The lungs crepitate freely; no bronchitis; much congestion.

There are subepicardial extravasations at the base of the heart. The heart is distended with blood. There is great enlargement of the heart, especially of the left ventricle. From

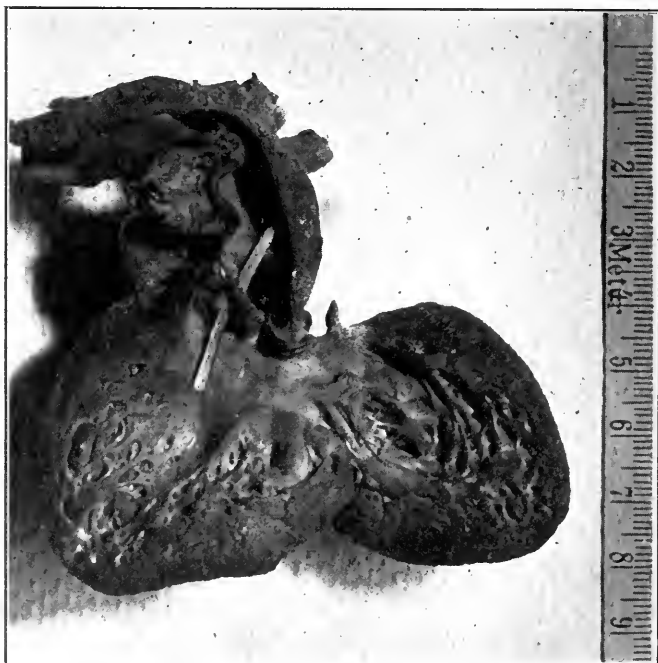


Fig. 1. STICK PASSED THROUGH OPENING BEHIND ANTERIOR SEGMENT OF AORTIC VALVE.

base to apex the heart is 4.5 cm. long; 5 cm. across widest base. The heart weighs 42 gms. The endocardium of the right side is normal. The depth is 4 cm., the wall is 3 mm. thick. The tricuspid orifice is 1 cm. in diameter. The foramen ovale is patent and the ductus arteriosus is large and widely open; the aortic orifice measures 6 mm. across.

The pulmonary artery is normal. The mitral orifice is small—about 5 mm. in diameter; the auricular surface of the valve

is smooth but nodular, and there are delicate but smooth outgrowths and nodules upon the cordæ tendinæ. No ulceration, no thrombosis. The aortic valves are large, higher than normal (about 6 mm.), irregularly thickened, but smooth, there being small, delicate, reddish nodules upon them so that they appear somewhat deformed. There are three valves, but the anterior segment is attached to an irregular band-like bridge, 2 mm. thick, (see Fig. I.) which extends across an oval depression in the upper part of the interventricular septum and the lower aspect of the aorta which here presents a marked bulging outward between aorta and pulmonary artery. It looks as if the lower end of the aorta and the interventricular septum had failed to meet fully. The depression is $1\frac{1}{2}$ cm. vertically, 1 cm. across and 8 mm. deep. The bulging is smooth and there is no communication between it and the pulmonary artery or the right ventricle. The interventricular septum is not perforate. The left ventricle is 4 cm. deep and the wall is 5 mm. in average thickness. The beginning of the aorta just above the sinuses of valsalva is wider than usual, but smooth; it is 2.5 cm. in circumference; coronary openings are normal; coronary arteries are normal.

The liver is large, congested, bluish in color, and weighs 127 grams. It is smooth.

The spleen is congested and weighs 7 grams.

The kidneys show marked uric acid infarctions in the medullary pyramids. The ureters and bladder are normal. The brain could not be examined.

DIAGNOSIS.—Chronic endocarditis of aortic and mitral valves (mitral stenosis); defect at base of aorta (aortic regurgitation); hypertrophy of heart; general passive congestion; dilated ductus arteriosus.

POINTS OF ESPECIAL INTEREST.—1. The left sided congenital lesion (Rauchfuss, of St. Petersburg, finds, out of 300 cases of fetal endocarditis, only 15 showing left sided lesion alone); 2. Unusual character of the malformation (the writer has thus far failed to find any record of a similar case); 3. Negative maternal history as to rheumatism, infectious or specific diseases; 4. Absence of early cyanosis with such a manifest lesion.

QUESTION OF INTEREST.—What is the relation of congenital malformation of the heart to anuria? The blocking of the kidneys by uric acid crystals forcibly recalls the case of anuria with congenital cardiac malformation presented by the writer at the

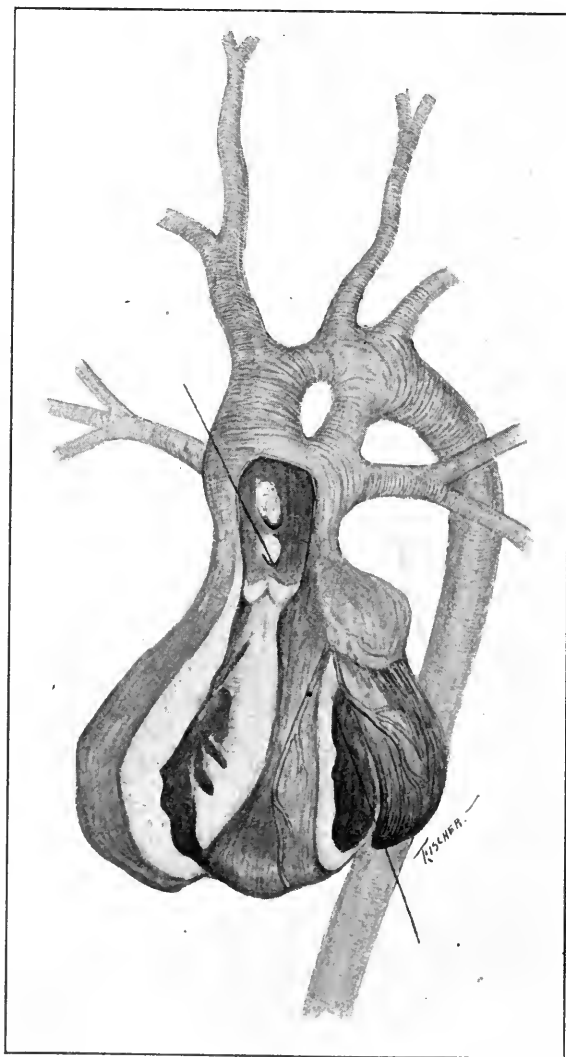


Fig. II. COMMON TRUNK FOR AORTIC AND PULMONARY VESSELS.
"ARCHIVES OF PEDIATRICS," OCTOBER, 1899.

last meeting of the American Pediatric Society (ARCHIVES OF PEDIATRICS, October, 1899).

In that case the heart showed a common trunk for aortic and pulmonary vessels, as shown in the drawing. (Fig. II.) At least two other cases have come under my observation, in which death from anuria occurred the first week of life in babies showing heart anomalies. The exact nature of these anomalies could not be ascertained, autopsies being refused.

If we might accept the older theory that uric acid precipitation be due to suboxidation, then we might reason that any cardiac malformation which interfered with the circulation of oxygenated blood through the kidneys would favor the accumulation of uric acid in these structures. Late authorities seem inclined to discard this Vierordt theory, in favor of the one of which Horbaczewski is a recognized expounder. This is that uric acid is derived in the body from the disintegration of proteids containing nuclein, notably from the leucocytes. Accepting this theory of the derivation of uric acid from the nuclei of leucocytes affords a rational explanation of the frequency of infarcts in the new-born, a marked leucocytosis at that age being acknowledged. It has been shown that diet which favors leucocytosis also increases deposition of uric acid. The question as to whether the latter be derived from the nuclein of proteid ingested or from the nuclein of the leucocytes called out by digestion, matters little, it seems to the writer, so long as it is admitted that thorough oxidation is necessary for complete metabolism, with resultant urea.

The well-known frequency of uric acid infarcts at a time when the heart is physiologically incapable of furnishing arterial blood to the renal arteries, on account of the still patent foramen ovale and ductus arteriosus further strengthens this opinion. The writer sees an analogy between this condition and the congenital cardiac deformities, which are practically a persistence and aggravation of the conditions which normally obtain in the first few days of life.

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DISCUSSION.

DR. ADAMS.—Did the child have any diarrhea?

DR. COTTON.—No; some calomel was administered and the bowels responded.

DR. ADAMS.—How many movements did the child have in the twenty-four hours?

DR. COTTON.—The first normal meconium was passed in the first few hours, and after that there were one or two movements a day in response to small doses of calomel.

DR. ADAMS.—I do not know whether Dr. Cotton places this case as a septic endocarditis or not. To what do you attribute the elevation of temperature?

DR. COTTON.—There is a question mark. For instance, there are some who believe that bacteria may produce a septic endocarditis, and the toxins may produce a smooth endocarditis. We had here the little plastic nodules.

DR. ADAMS.—I have recently found reported two cases of congenital septic endocarditis. These cases were found really by collateral reading rather than the reports of cases as such. The subheads are often quite confusing. In reference to the question of the relation between the cardiac lesion as described and the anuria, it does not seem to me that one is responsible for the other. We frequently find, in septic endocarditis, infarctions, not uric acid infarctions always, but usually septic infarctions. It would be interesting to have had a bacteriologic examination. I have one case under observation now of septic endocarditis, not in an infant however. There is no remission in the temperature except from the hydrotherapy. The septic cases have a septic temperature. This baby whose case is reported lived five days with complete anuria.

DR. BLACKADER.—Had the mother suffered from any rheumatic affections?

DR. ADAMS.—That part of the history was entirely negative.

DR. COTTON.—I would say in regard to the temperature, there must always be a question mark in the etiology of temperatures. Dr. Holt has put himself on record concerning an inattention temperature in the first few days of life. There have been a number of confirmations of that as a possible cause of temperature. Here we had conditions extremely favorable for the development of an inattention temperature, if we may recognize that as an etiological factor. The child nursed poorly and was fed with pumped milk through a tube, and somewhat ineffectually. The text-books treat anuria too lightly. There have come under my observation a number of cases, I can think now of 6 fatal ones, in which there was anuria. Of these 4 showed anomalous heart conditions. The 2 others, in which no autopsy was allowed, were recognized as blue babies with evident abnormal heart murmurs. It seems to me that it is certainly suggestive of some relation between the cardiac organic difficulty, which actually interferes with the oxygenation of the blood, and the uric acid infarct. So far as a bacteriologic examination is concerned, the report is not complete, because I have not heard from the pathologist. Some slides are being made, and I will be only too glad to report on them.

ATRESIA OF THE LARYNX DUE TO TRAUMATISM, THE RESULT OF FAULTY INTUBATION.*

BY W. P. NORTHRUP, M.D.,

New York.

There is a certain amount of sentiment connected with the presentation of this paper and its accompanying specimen. It was the last case of intubation seen by the late Dr. O'Dwyer, and as you will remember it illustrates the subject of the paper last presented by him before this Society.†

This is a specimen of atresia of the larynx, apparently the result of faulty intubation, *i.e.*, caused by faulty technique. Looking backwards, it seems probable that it was a case of subglottic stenosis from the first.

Dr. O'Dwyer in his last paper, referred to above, says: "The cause of persistent stenosis following intubation in laryngeal diphtheria can be summed up in the single word—traumatism." He next asserts that it may be due to (1) faulty tubes; it may be due to (2) faulty technique, *i.e.*, it may be the fault of the intubator. The tubes used in this case were of the latest pattern, approved by Dr. O'Dwyer himself; the technique was that of a beginner and proved faulty. Here, then, is a case of traumatism resulting in cicatricial contraction and finally complete stenosis of the larynx.

A. B., ten months, was sick at first with "bowel trouble," so the physician in charge asserted. The child gradually became hoarse and developed the following symptoms: hoarseness, croupy cough, croupy inspiration, croupy expiration, dyspnea, aphonia, cyanosis. The pharynx was red and swollen; no exudate was seen at any time. Intubation was demanded. The operation was performed by a young friend whom I had instructed, and who rehearsed the operation upon the cadaver sufficiently, I thought, to justify him in doing it upon his case. He inserted the tube fairly well, leaving the string attached. I assisted the operator and was inclined to congratulate him upon having

*Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

† "Retained Intubation Tubes—Causes and Treatment." By J. O'Dwyer, M.D. Transactions of the American Pediatric Society. Vol. ix. 1897.

done well for a beginner. Further instruction was given concerning feeding and general care of intubated patients, and the case was left in the care of the physician and a trained nurse seemingly in a satisfactory condition. The subsequent history was that there was need of repeated (three) intubations, two extubations and an accident which necessitated tracheotomy. The second and third intubations were required because the child got its hands free and dragging out the tube so suddenly that the nurse, though watchful and careful, was taken entirely off her guard. Extubation is always more difficult than intubation, and it is probable that this was the occasion of greatest harm to this patient's larynx. Five intubations and two extubations, in the hands of a beginner, reveal ample cause for the lesion here shown.

Two things constantly worked against the success of intubation and gave Dr. O'Dwyer great uneasiness of mind: viz.: imperfect tubes and imperfect technique. Each brought reproach upon the operation. Each meant traumatism to the larynx; each worked to the harm of the patient; each diminished the chances of recovery. The inventor wrote always in the same strain, endeavored to keep it before the minds of the medical profession that the operation should be done by skilled hands and should include proper tubes.

I am permitted to show you this specimen for the sake of the lesson conveyed. We learn from our accidents; this specimen tells its own story; faulty technique has its monument in the specimen which is here shown.

The specimen shows scar tissue extending across the calibre of the larynx at the level of the cricoid ring. It is nearly like the constriction of an hour-glass in its middle. A probe passed from above is arrested in a cul-de-sac; passed from below, the probe catches in a similar cul-de-sac. The closure is complete; no air could possibly have passed. An accident rendered tracheotomy necessary. Through the operation wound the endeavor was made subsequently to open the channel through the larynx, but obviously without success. That is a matter of surgery and apart from our present purpose: viz., to point the lesson of faulty technique in intubation. It has meant in this case retained intubation tube, laceration of larynx, finally atresia. The child's death was due to pneumonia.

The patient was seen often by Dr. O'Dwyer just before he was taken sick, and often during his illness he discussed the prognosis and treatment. The treatment, you will be interested to recall, was outlined in his last paper and consisted of inserting a hard rubber tube and leaving it in place some weeks to allow the ulcerated larynx to heal. The hard rubber tubes, you may recall, were not yet on the market, but the manufacturer, Ermold, had promised them for the near future and a sample Dr. O'Dwyer showed on that occasion. Such a tube this child wore for some time until the accident which necessitated the tracheotomy.

DISCUSSION.

DR. MILLER.—I think Dr. Northrup is rather severe on the operator. I have seen somewhat similar cases occur in the practice of very skilful men, and while I believe that intubation is an operation every practitioner should be able to perform, I think, where we can get the service of one who is skilled, it ought always to be done. Unless a man is very familiar with the technique he will find it, often, a difficult operation.

DR. COTTON.—It would be very interesting to know in how many cases some previous lesion or possible traumatism may have affected the calibre of the larynx. This occurs to me as I recall a case in my own practice some thirteen years ago in which I was called by the physician in a hurry to relieve a child that had intense dyspnea with a diagnosis of diphtheria. I attempted to introduce a tube to relieve the dyspnea. The conditions were not good, and no assistance was at hand except the young physician who was with me. To make a long story short there was a failure to relieve the dyspnea, no instruments being at hand for the opening of the trachea, and the child succumbed. I was very anxious to know why I failed. That larynx removed from the body showed a stenosis from a previous traumatism. There was an apparent cul-de-sac posteriorly in which the point of the tube caught every time. I am very sorry that the specimen has been lost, and I have no photograph of it.

DR. NORTHROP.—As to a cul-de-sac excited by previous traumatism, that is quite impossible in this case, for the child then would never have breathed. We used O'Dwyer's tubes, but the operation was obviously faulty. The moral is, not

everybody can do an intubation safely. You notice this is a case of subglottic stenosis, and that means a swelling of the membrane within a restricted ring; that is, it swells to the detriment of the calibre, the ring being resistant. That pressure made the hole through which the intubation tube was to go naturally smaller, and putting it in four or five times took all the membrane off, bringing the submembranous tissue to the surface and made it favorable for stenosis. Practically it is a case of traumatism. But if we want to say honestly what is the fact in these cases it is, not everybody can do intubation without detriment to the patient.

Partial Myxedema.—Hertoghe (*Gaz. Heb. de Med. et Chir.*, December 17, 1899) points out that, while myxedema is well known and can be readily diagnosticated and treated, there are many degrees between entire thyroid integrity and complete loss of function of this gland, concerning which greater difficulties will arise. Three features should be borne in mind: (1) The study of the organic and functional characteristics of the parents of children manifestly hypothyroidic; (2) the analysis of true myxedema in the feeblest traces of the hypothyroidic taint; (3) thyroid treatment of conditions suspected to be myxedematous. True myxedema is characterized by premature senescence of the whole organism; this is seen to a lesser degree in mild chronic hypothyroidism. The dominant symptom, however, is an obstinate constipation. This is a life-long complaint, and all the other symptoms are apt to be ascribed to this one trouble. Once the disease is well established the patients are somnolent and easily fatigued and everything physical or mental seems to be beyond their energy. Their sleep is poor, they rise early, more wearied than when they lay down, and it is only toward evening that the symptoms abate. The hands are cold, moist and formless, and with a little experience the physician may appreciate the extent of the disease by a mere hand-clasp. In children the most important sign is backwardness. The tendency here is toward cure. The effects of thyroidin are no less marked than in true myxedema. It should, however, be used with discretion. The disease is often mistaken for and treated as anemia, and hence wines, beers, baths and cold douches are wrongly prescribed. Thyroid extract is more active and better tolerated after a preliminary treatment by means of the mild alkalis, sodium bicarbonate, etc. Since diarrhea may be caused by this drug, it is well to combine it with bismuth.—*Medical News.*

Clinical Memoranda.

REPORT OF A CASE OF PULMONARY STENOSIS.*

BY SAMUEL McC. HAMILL, M.D.,

Instructor in Clinical Medicine, University of Pennsylvania; Visiting Physician to the Howard Hospital, and to the St. Christopher's Hospital for Children.

The patient, Walter S., aged six years, was first admitted to St. Christopher's Hospital on the 7th of June, 1898.

The notes made at that time are as follows:

FAMILY HISTORY.—His father has had a number of attacks of acute articular rheumatism in the last ten years. A cousin on the paternal side has heart disease, with cyanosis and cardiac palpitation. Aside from this the family history is negative.

PREVIOUS HISTORY.—When four years old the patient had pertussis. Since an attack of measles in January of the present year, he has had a short, dry, hacking cough by day, with severe paroxysms of cough on first lying down at night. There is no history of rheumatism, tonsillitis, chorea, diphtheria or scarlet fever, and no history of cyanosis.

PRESENT HISTORY.—Three days ago he developed headache, which has persisted constantly to the present time. He has been feverish and drowsy during the day and delirious at night. There is no history of epistaxis; his appetite is poor; his tongue is rather heavily coated and dry. His face has a typical dull and heavy expression. His abdomen is fairly soft; there is no marked tenderness and no tympany. The spleen is enlarged, extending below the margin of the ribs. The lungs are normal. A Widal test, made on the third day after admission, was negative, again negative on the ninth and fifteenth days, and finally positive on the twenty-first day of the disease. The patient ran through a rather typical mild attack of typhoid fever without any disagreeable symptoms. The heart condition (which will be reported upon later), seemed but little influenced by his illness. He remained in the hospital for some weeks during convalescence and was discharged in very good condition on the 28th day of July.

*Presented to the Philadelphia Pediatric Society, November 8, 1898.

He was again admitted on the 17th of October. Since the attack of fever he had gained in weight, and aside from some pain and stiffness in the calves of his legs had been perfectly well. One week prior to this admission he became fretful, feverish, disinclined to play, and chilly. His appetite was poor, he was feverish and delirious at night. He had very severe paroxysms of coughing, with a short, dry, hacking cough between the paroxysms. There was no expectoration. His bowels were constipated and he vomited some. As a matter of interest a Widal test was made, with negative results. A physical examination showed the respirations increased in frequency and labored, suprasternal and supraclavicular retraction during inspiration, with some drawing in of the interspaces, especially on the left side. There was no asymmetry of the chest. The tactile fremitus was more marked on the right side than on the left, especially in the infraclavicular region. The percussion note was higher pitched over the anterior portion of the right chest than over the left and had a tympanitic tendency. High-pitched bronchial breathing, accompanied by a few moist râles, was heard in the right infraclavicular region. In the left chest there were numerous moist and dry râles. At the apex of the left chest, posteriorly, the breathing was bronchovesicular and distinctly bronchial at the right apex, posteriorly. Throughout the entire posterior portion of the chest there were heard numerous râles. The abdominal examination was negative. The patient's temperature at the time of admission was 103.2° F. The temperature fluctuated between 99° F. and 104° F., for the next two weeks gradually reaching the normal point on the tenth day in the hospital. The most distressing symptom throughout the attack was the violent paroxysmal cough. The paroxysms sometimes persisted for a period of one or two hours. They occurred chiefly during the night. Finally they were controlled without difficulty by the inhalation of the vapor of the compound tincture of benzoin.

The patient made a complete recovery and is in very good condition at the present time. This attack of bronchopneumonia has had apparently no ill effect upon his cardiac condition.

The result of the heart examination is as follows: The apex beat is in the fifth interspace about an inch and a quarter within the midclavicular line. When the breath is held at the end of expiration there is a visible pulsation in the second

interspace to the left of the sternum. There is a slight epigastric impulse and some pulsation in the sixth interspace below and to the left of the apex beat. On palpation of the apex there is felt a faint systolic thrill which is palpable over the entire precordia, and is especially distinct along the upper edge of the sternum in the third and fourth interspaces. At the latter point is felt also a strong, systolic shock. The point of maximum intensity of the thrill has sometimes corresponded to the pulmonary region, at other times it could not be determined. On percussion there is found an area of dulness extending upward in the left parasternal line to the lower border of the first rib, and on the same level a half-inch to the right of the right edge of the sternum. The right border corresponds to a line extending obliquely downward from this point to a point about an inch and a half to the right of the sternum opposite the xyphoid cartilage. The left border corresponds to a line extending obliquely upward and inward from half an inch outside the apex beat to the first rib in the parasternal line. Auscultation reveals a rather rough, blowing, systolic murmur heard over the entire precordia, and to some extent over the entire anterior portion of the left chest, with its point of maximum intensity in the second left interspace. At this point it is superficial, very loud, low-pitched, almost grating in character. This very marked loudness is limited to an area about the size of a half-dollar corresponding to the pulmonary region. Over the portion of the heart extending to the right of the sternum is heard a peculiar, loud, flap-like, systolic sound, suggesting the loud first sound of mitral stenosis. There is no accentuation of the pulmonary sound. As a matter of fact, it is almost inaudible. The heart's action is rather rapid, strong and regular.

In order to determine positively that this murmur is due, as the description indicates, to obstruction at the pulmonary orifice, it is necessary to exclude other possible causes of systolic murmurs.

Systolic murmurs with maximum intensity in this region are of very common occurrence and are usually independent of any structural change in the heart. Such are the murmurs due to the various forms of anemia and the pulmonary murmur of Graves' disease. The absence of anemia and the symptoms of Graves' disease, the visible and palpable pulsation, the thrill, the increased dulness to the right, the loudness, roughness, and

distinct localization of the murmur, with the feeble pulmonary sound and hypertrophied right heart render such an etiology impossible in the present case. The possibility of aortic stenosis as a cause of the murmur is excluded by the practical absence of hypertrophy in the left heart, its presence in the right, the relative faintness of the murmur to the right of the sternum and its failure to be transmitted to the vessels of the neck. Mitral regurgitation with a murmur of maximum intensity in the pulmonary region, as is occasionally noted, is excluded by the character of the murmur, the absence of pulmonic accentuation and the smallness of the left heart.

Either tricuspid regurgitation or an aperture in the interventricular septum would give rise to a murmur somewhat lower down, usually below the third rib, which has no tendency to be propagated upward and is little likely to be confounded with the murmur of pulmonary obstruction. Aneurism of the thoracic aorta is contraindicated by the age of the patient, the absence of pain and other pressure symptoms, and the presence of hypertrophy involving alone the right heart. That an aneurism, enlarged bronchial glands or mediastinal tumor might, through pressure, induce a mechanical obstruction of the pulmonary artery is not impossible.

As against such an origin is the excellent general health of the patient, the rapid, complete recovery from the attack of typhoid fever, the rapidly progressing convalescence from the bronchopneumonia, the almost complete cessation of the paroxysmal cough and the absence of pressure symptoms.

On the whole, it would seem, therefore, that the most reasonable explanation of the murmur is to be found in a lesion of the pulmonary orifice. Pulmonary stenosis is uncommon, and its existence in the absence of cyanosis, clubbing of the fingers, and other evidences of venous stasis is rare. The condition has sometimes persisted to well advanced life, but not more than 12 to 16 per cent. reach the age of twenty years. That this patient has passed through three rather serious illnesses in the present year and appears to-day in as good condition as you see him is remarkable.

Whether or not this lesion is congenital or of post-natal origin must remain to some extent a question. The absence of a history of the most common conditions which give rise to endocarditis would suggest a prenatal origin. The attack of

measles may have been the starting point, or some other infectious condition not brought out by questioning may have been responsible.

The degree of hypertrophy of the right heart at the time of the first admission, six months after the attack of measles, without any change in the size or general condition of the heart between the first and second admissions—thus indicating a very slow progress—would seem to be evidence against the measles origin. The absence of cyanosis, clubbing of the fingers or toes, stunted growth, mental hebetude, etc., are of course against the prenatal origin of the lesion. These signs although common are by no means essential, and since it is impossible to fix upon a postnatal starting-point, the case is presented as one of congenital pulmonary stenosis. There always exists in these cases the possibility, indeed, one might say, likelihood, of other cardiac malformations, especially of defects in the cardiac septa or the persistence of the arterial duct. These conditions are difficult if not impossible to prove.

The short, sharp, flap-like sound heard over the right heart deserves some consideration. It suggests the possibility of a co-existent tricuspid stenosis, a not unnoted accompaniment of pulmonary obstruction. It may, however, be wholly dependent upon the firm systole of the hypertrophied right heart.

1822 SPRUCE STREET.

A Case of Diabetes Insipidus in an Infant of Two Months.

—Olimpio Cozzolino reports (*Il Policlinico*, May 1, 1900), a case in which the amount of urine passed daily was over a litre. There was nothing in the family history to account for the condition. Treatment consisted of an equal mixture of tincture of valerian and ethereal tincture of the chlorid of iron, gtt. v.-x. being given three times a day, and a spoonful of coffee in an emulsion of cod-liver oil in the morning. The child recovered. Cases of this kind are extremely rare in young children. Heredity is usually a chief etiological factor, and nervous taints, such as hysteria and peripheric neuritis, traumatism, falls, shocks, acute and chronic infective diseases, and gastrointestinal catarrh, have all been considered to exercise an influence in the production of diabetes insipidus in children. The author agrees with Heidenheim, that in certain cases there is merely exaggerated but still normal activity of the emunctories of water, very little solid matters being excreted.—*Medical Record*. Vol. lvii., No. 22.

A CASE OF SUPPRESSION OF URINE APPARENTLY DUE TO ASCARIS LUMBRICOIDES.

BY FRANK VANDER BOGERT, M.D.,

Resident Physician, Children's Hospital, Philadelphia.

Annie R., white, aged five years, was admitted to the Children's Hospital on July 8, 1900, in the service of Dr. Frederick A. Packard, with a history of not having passed her urine since four o'clock on the previous afternoon, a period of nineteen hours.

The child's previous history was as follow :

FAMILY HISTORY, as far as could be obtained, absolutely negative. She had never been a healthy child, having always had intestinal troubles and difficulty in urination. The present trouble began on July 4th, four days before admission, with severe pain in the abdomen, causing her to lie with thighs flexed. She became very constipated and her abdomen was tender to pressure. There was no history of vomiting, nor of any symptoms referable to suppression of urine.

Examination upon admission revealed a fairly well nourished child. The expression of her face was bright, giving no evidence of pain; chest well developed; the breathing was not labored; the lungs and heart were apparently normal; the abdomen was not distended, and the bladder was apparently empty.

Soon after admission she passed her urine for the first time in nineteen hours.

Her temperature, on admission, was 101.2° F.; pulse, 120; respiration, 48; and from that time the temperature varied between 98° and 102.5° , rising in the evening and falling to normal in the morning until July 16th, when it rose to 103.4° . The throat was found to be inflamed and a dose of antitoxin was given. The temperature gradually fell and, on July 19th, reached normal where it practically remained until the child left the hospital on August 6th.

In the two weeks following admission the daily amount of urine never exceeded nine ounces, and only twice did it reach that amount. On July 23d it increased suddenly to thirteen ounces, and at seven o'clock that evening, a round worm,

measuring 27 cm. in length was passed by the bowels. From that time until the child left the hospital, on August 6th, her daily amount averaged fifteen ounces, with much lost. The following table will show the apparent effect of the passage of the worm:

OUNCES.			OUNCES.		
July	10	4 (some lost)	July	24	lost
"	11	6	"	25	26
"	12	6½	"	26	4 (some lost)
"	13	9 (some lost)	"	27	8
"	14	6	"	28	21
"	15	2 (some lost)	"	29	11
"	16	9	"	30	12 (some lost)
"	17	6 (some lost)	"	31	26
"	18	6	Aug.	1	20 (some lost)
"	19	6	"	2	16 (some lost)
"	20	6	"	3	26
"	21	4	"	4	16 (some lost)
"	22	lost	"	5	15
"	23	13 (worm passed)			

Frequent chemical and microscopical examinations of the urine were made but always with entirely negative results, and at no time were symptoms of suppression of urine present.

The bowels did not move on the day of admission, but moved twice on the following day, a dose of calomel (1 grain) having been given. They moved naturally on the third day. After that time they never moved except by enema and were very irregular.

Lumbricoid eggs were found in the stools on July 25th and eggs of the *Tricocephalus Dispar* on the 29th. The patient was subsequently treated by calomel and santonin for three successive nights but no more worms were passed. She left the hospital on August 6th in good condition and was passing a fair quantity of urine.

Phosphorus in the Convulsions of Infancy.—Lange (*Semaine Médicale*, No. 3, 1900) calls attention to the value of phosphorus in the convulsions of infancy. After thorough examination of the gastrointestinal tract the drug is administered for two or three days, in the doses usually employed in rickets. It is claimed by the author that phosphorus exerts a more decided calmative influence on the nervous system in infantile eclampsia than do chloral or bromids.—*Philadelphia Medical Journal*. Vol. v., No. 16.

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OCTOBER, 1900.

Edited by WALTER LESTER CARR, M.D.

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TYPHOID FEVER IN INFANCY AND EARLY CHILDHOOD.

Typhoid fever during the first decade of life has long been recognized, but the question of its frequency before the second year has led to differences of opinion. One view is that it is relatively frequent, that is, its occurrence is proportionate to the exposure of the infant, who is protected from the usual sources of infection by the nature of its food. Physicians who take this side of the controversy hold that the poison in infancy does not always produce a type of fever similar to that seen in adults and the cases escape detection.

The other view is that the disease is comparatively infrequent as infants and young children are not susceptible unless overwhelmed by the poison when the fever shows the charac-

teristic symptoms observed in adults. Those who hold this view believe that the fever ranges of infancy are more likely to be either a gastroenteric infection, an influenza poisoning or a tuberculosis.

Cases of typhoid fever are seen in infants but the exposure is less than in adults because babies at the breast usually receive no other food. With infants fed artificially the food is almost always rendered sterile and unless unboiled water or milk is given the avenues of infection are so limited that the majority of infants escape.

Typhoid fever as observed during the first two years is often in association with an epidemic affecting adults and the risk of contamination of both the water and milk supplied to the infants and children is increased by the direct infection of utensils in daily use by members of the family ill with typhoid. With such exposure the infant may present all the typical manifestations of the disease.

Typhoid fever in infancy has symptoms as distinct as those observed in older patients, but there are cases where some of the pathognomonic signs are wanting.

The temperature is generally of the remittent form, and even when ranging high it falls by the end of the third week to normal or subnormal. Diarrhea is not frequent and constipation may be quite troublesome. Spots are not always detected and if the case does not come under treatment early it may not be possible to determine their presence. The spleen is usually palpable, but it may be tender without being appreciably enlarged.

With adults a patient who presents even one symptom of typhoid is kept under observation for further signs, and typhoid fever is often presumed to exist where another disease cannot be detected. In an infant, however, the symptoms are frequently interpreted as due to a gastroenteric infection not specifically typhoid, and the disturbed digestion and high temperature are regarded as the usual accompaniments of the irritation.

There is good reason to believe that the typhoid fever of infancy is in many cases a mild invasion that runs a course similar to the abortive form observed in older children and in adults.

The general symptomatology of these cases is being investigated and reports show that the disease is to be seen both in infancy and childhood with a frequency that indicates that heretofore many cases have been overlooked.

The mortality rate among infants with typhoid fever is so low that the macroscopic appearance of gross changes in the intestines of cases that come to autopsy is not an index of the frequency of the disease. This will be more accurately determined when the Widal reaction is tried repeatedly in every case of continued fever in infancy and when the movements from the intestine are examined for Eberth's bacillus.

Seven Cases of Noma of the Cheek.—Comba states (*La Sperimentale*, 1899) that the bacteriology of noma is in a somewhat unsatisfactory state, since almost every observer who has investigated the disease has described a different organism as the specific cause. It is true that both Petruschky and Freymuth have found the Löffler bacillus in noma, but then Comba in his 7 cases has been unable to confirm the presence of this bacillus at the growing edge of the disease. Guizzeti, Schimmelbusch and others have also described microorganisms in this disease; but Comba has only been successful in finding staphylococci, both albus and aureus, in his cases, together with others, which on inoculation into animals did not prove pathogenic. In one case, however, of noma in a child he did succeed in isolating an organism—bacillus alpha—which gave rise to gangrene when inoculated into a white rat. As regards the changes in the tissues surrounding the diseased area, the author states that the necrosis cannot be due to a primary affection of the vessels, inasmuch as these are healthy except when they themselves have become involved in the necrotic process, and, in consequence, thrombosed.—*The British Journal of Dermatology*. Vol. xii., No. 5.

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The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, M.D., M.R.C.P., M.R.C.S., etc., Clinical Assistant, Hospital for Sick Children, Great Ormond Street, etc. Second, Revised and Enlarged Edition. Adapted to the New British Pharmacopeia. London: Rebman, Limited. 1900. Pp. xvi-240.

It is scarcely eighteen months since the appearance of the first edition of this little book and the demand for it has led the author to revise it and rewrite it on the basis of the new British Pharmacopeia. It has been increased by the addition of thirty-two pages of new material.

The introduction gives the usual rules for the division of doses suitable for various ages.

The work is alphabetically arranged and each drug is made a heading for the dose, use, therapeutics, properties and formula for ordinary combination. There is a therapeutic index that is of some value in calling attention to the number of drugs available for most diseases. If a book of this character is in demand it would be better to simplify it as much as possible. It does not seem necessary to hold to classical headings as for instance from "Scalds" the reader is referred to "Combustio" and from "Headache" to "Cephalalgia," while "Dusting powder" is in every-day English.

The book is of convenient size and well printed. American readers who do not object to the British Pharmacopeia will find it helpful.

The Care of the Child in Health. By Nathan Oppenheim, A.B., M.D., Attending Physician to the Children's Department of Mount Sinai Hospital Dispensary; author of "The Development of the Child" and "The Medical Diseases of Childhood." New York: The Macmillan Company. 1900. Pp. 308. \$1.25.

This book deals more particularly with the subjects relating to the general management of the mother before the birth of the child, the care of the child with reference to exercise, clothing, and kindred topics than is usual in most works for popular use. Such a book is satisfactory to a great many people, because the author expresses his views with clearness. There is nothing added to the subject, but the book is to be recommended for the common sense ideas on the diet, hygiene and environment of the child.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, June 12, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. JAS. SAILER exhibited a case of

SPURIOUS MENINGOCELE OF THE OCCIPITAL BONE.

The patient was a child four years of age who fell down stairs and was drowsy for two hours afterward. A month later she developed vomiting, strabismus, and staggering gait. The condition has grown steadily worse and about three weeks before she was shown a pulsating tumor appeared in the occipital region in the neighborhood of the external occipital protuberance. It communicated with the cranial cavity by an irregular opening in the occipital bone. A thrill was felt by palpation and a murmur heard on auscultation. An exploratory puncture proved that the tumor contained blood.

DR. W. R. WILSON stated that there were two points of importance, which occurred to him. In the first place, the absence of increase in tension in the tumor. In meningocele the increase of cerebrospinal fluid would cause increase in pressure during the effort of crying to such extent as to distend the sac and augment the tension of the sac wall. He would think that this would be an important sign in this case, inasmuch as the tumor has been of short duration and had yet been rather extensive, showing that the separation of the bone, the result of traumatism, has permitted a rapid discharge of fluid.

The second point was, that the surface of the tumor did not resemble the covering of such cystic tumors as are found in the congenital instances of meningocele and in spina bifida. He alluded to one point in the differentiation of congenital tumor, *i.e.*, situation of the separation of the bone. In as far as he had been informed, in the congenital tumors, the protrusion of the membrane occurs usually through the separated portions of the calvarium, in the sutures and fontanelles. Therefore in meningocele of congenital origin there is a protrusion above the occipital protuberance rather than in the region of the protuberance; in a like manner a tumor situated inferiorly to the occipi-

tal protuberance may find its exit in the region of the foramen magnum. The hinge-like joint between the basilar portion and the squamous portion of the occipital bone may also offer a yielding partition through which the hernia is apt to protrude.

DR. JOPSON said the tumor, whatever its nature may be, had apparently its origin from within the skull. Cases have been reported in which angiomas have so eroded the skull from without that connection with the sinuses has been established; but the fact of the strabismus and other symptoms of pressure being noticed before the tumor tended to show that the origin was from within the cranial cavity. He did not think it possible to altogether exclude angiosarcoma, which would produce pressure upon the brain and by erosion or separation of the bones at this point would produce a pulsating tumor externally. Cases of so-called "sinus protrusion" have been described due to protrusion of the longitudinal sinus through an ununited fontanelle or imperfectly ossified bone and associated with rickets. His own opinion was that the tumor was some form of angioma or dilatation of the blood-vessels which communicated with the sinuses at this point and that the pulsation was derived from communication with an artery or from the transmission of the pulsation from the brain.

DR. SAILER was glad to have had Dr. Wilson's support upon the improbability of the congenital origin of the tumor. He was satisfied that it was not congenital, but could not make as satisfactory a differential diagnosis.

The sinus protrusion to which Dr. Jopson refers has been described by Stromeier, but as he understands it, it was essentially different in character and nature from the present lesion. The fact that the tumor developed a long time after the symptoms of brain pressure was, he thought, sufficient proof that it was not due to distension of the veins of the diploe. Its long duration and the flourishing general condition of the patient were against its sarcomatous nature; particularly was this true in so young a child.

The most important point was the treatment. He had hoped that Dr. Jopson would discuss this more fully, because it was a surgical and not a medical question. In the cases of spurious meningocele operation has been performed almost in-

variably and in many of the cases, especially since the introduction of antiseptics, the operation has been entirely successful.

He laid stress upon the report that the oculist, Dr. Shoemaker, had kindly furnished. He stated there was no choked disk. A tumor producing much pressure in the occiput ought to produce choked disk. Neither was there paralysis of the ocular muscles. Left hemianopsia was not made out.

DR. ALFRED HAND, JR., reported

SIX CASES OF SO-CALLED GLANDULAR FEVER,

the main symptoms, as described by E. Pfeiffer, being irregular fever with enlargement of the cervical lymph nodes beneath and posterior to the upper end of the sternomastoid muscle. Three of the cases were mild, terminating in a few days, the other three lasting from one and a half to three weeks and presenting so great an enlargement of the lymph nodes that there was decided torticollis, the swelling extending from near the angle of the jaw to the middle line posteriorly. None of the cases suppurated, a result which was thought to be due largely to the free use of ichthyol in the form of a 25 per cent. ointment, although in one case where this did not seem to control the swelling pure ichthyol was applied on lint, with a rapid subsidence of the swelling. Study of cultures taken from the pharynx in three of the cases gave varying results, streptococci predominating in one, staphylococci in another, and the third being a mixture of both with diplococci and a few small bacilli (not the diphtheria organism). In view of the obscure and evidently varying etiology, the term suggested by A. Muggia, acute cervical lymphadenitis, is held to be without dogmatism as to the cause, while the term glandular fever conveys the idea of a distinct disease with a specific infection. Bacteriology may at some time prove such to be the case, but until that time the term glandular fever is held to be an unnecessary and therefore undesirable addition to disease-nomenclature.

DR. CROZER GRIFFITH reported the histories of two outbreaks in households of what might at first thought have been taken for the so-called glandular fever, but which further study showed to be without doubt influenza with lymphatic involvement. In one family three children exhibited the affection of the lymph nodes. In the other household four persons were ill

with what seemed to be the same infection in each case, although only two of them showed swelling of the lymph nodes.

DR. A. E. ROUSSEL said that the subject was of particular interest to him for the reason that three years before he had read a paper before the Philadelphia County Medical Society in which he reported four cases of glandular fever, one an adult.

Since that time he had seen other cases and noticed the numerous reports, especially by foreign observers; indeed the recent editions of some text-books such as "Ander's Practice," and Ashby and Wright have added this subject to their list.

He believed that the cases are suggestive of a particular infection, the cause of which is not yet known. In most instances the throat seems to be somewhat congested and in his group of cases there was a disproportionate rapidity of pulse as compared to the fever which caused the onset to be suggestive of scarlatina.

He thought that some of the recent descriptions of this disease were markedly different from the original cases mentioned by E. Pfeiffer and in these instances the enlarged nodes were to his mind doubtless due to other and varied causes.

It was an error to ascribe too much to influenza which bids fair to take the place occupied some years ago by malaria and which like the latter would probably be found much less common if bacteriological examinations were more frequently made.

The treatment he did not believe a matter of much importance because almost all the cases recover. He had only been able to find a record of two fatal cases and in these instances not only was the diagnosis questionable but they occurred in weak and debilitated subjects. The convalescence, however, is generally slow and tedious.

DR. HAMILL said that while engaged in preparing a paper on glandular fever he was impressed by the wide diversity of opinion expressed by the various authors as to its etiology and symptomatology. He collected the causes given by the various writers, and while he emphasized the one most frequently mentioned, he had suggested that, owing to our indefinite data, it was best to consider the etiology as undetermined. He has seen many cases of enlargement of the lymph nodes since the paper was written, and some of these have closely simulated the

symptom complex which Pfeiffer described. The etiology remains indefinite, so far as he has observed. He had observed two children in the same family having an infectious condition accompanied by quite marked enlargement of the lymph nodes posterior to the upper portion of the sternocleidomastoid muscle. There were some catarrhal symptoms present in both, and one child had a limited patch of congestion at the base of the right lung; the other had a mild bronchitis, and both a marked laryngitis. The trained nurse in charge of one of them developed laryngitis which was accompanied by a marked febrile curve, with enlargement, to the size of a pigeon's egg, of the lymph nodes posterior to the sternocleidomastoid muscle. There was not much pain or tenderness, and in all cases the subsidence of the swelling was more rapid than in the majority of cases of so-called glandular fever. There was no fixation of the head, nor was there any complicating nephritis as in the majority of Pfeiffer's cases. The maximum temperature in the worst of these cases was 104° F. The temperature did not fluctuate materially, and reached the normal about the third day. While it is true that an epidemic disease, in some respects resembling influenza, was prevalent at the time these cases developed, he was not satisfied that without bacteriological examination he would err as much in calling them influenza as in calling them glandular fever. The day before he had seen in the Howard Hospital an acute enlargement of the lymph nodes under and posterior to the right sternocleidomastoid muscle which was accompanied by wry-neck in a boy aged nine years. The nodes were the size of a hen's egg; the surrounding cellular tissue was much infiltrated, giving a board-like hardness; the body temperature was 103° F. The child had been ill for three or four days. There was some tenderness on pressure, and the head was held fixed. Examination of the throat revealed marked redness of both tonsils, more especially of the right. There was no exudate, and no redness beyond the tonsils. The exact nature of this case, owing to the fact that the child was seen but once in the dispensary service, remained undetermined, but it seemed to resemble glandular fever in many particulars.

He agreed with Dr. Hand in believing that the majority of cases described as glandular fever are not dependent upon a common cause. There is a class of cases, however, similar to

those reported by Pfeiffer which, whatever their etiology may be, certainly have the same symptom complex. He was not sufficiently satisfied that it is a bad thing, in the absence of any other classification, to describe these cases under the term glandular fever. Whatever may have been the purpose of Pfeiffer's original communication, he has certainly accomplished much good by stimulating interest in a subject which had up to the time of its appearance been more or less neglected.

A case which he had reported to this Society a few years ago was unique in his experience. The case had none of the characteristics of the so-called acute cervical adenitis, but did, on the other hand, bear a close resemblance to the cases described by Pfeiffer, barring the fact that there was not a complicating nephritis present. Cultures made from the throat in this case showed the presence of staphylococci and streptococci. It is impossible to say whether or not they had anything to do with the development of the condition. There was no epidemic of influenza prevalent at the time, and there was no other person ill in the house.

Dr. Hand's reference to the presence of a rapid pulse in his case reminded him of two cases which he had observed in the same family. In one child there was no history of any rash; in the other a rash was present, which the attending physician had described to the family as a scarlet fever rash, but not scarlet fever. There was no desquamation at the time when he saw the child, which was about nine days after the rash had disappeared. In both cases the temperature was elevated and the pulse was unusually rapid. One child developed nephritis, which may have been connected with the glandular condition or may have been the result of a pre-existing scarlet fever.

DR. HAND stated that the pulse rate was increased out of proportion to the fever in only the one case he had mentioned. While he was aware that the majority of these cases do not suppurate, yet this complication has been observed; and in three of the cases reported it seemed inevitable until ichthyol was applied; in other conditions this drug has been used to abort the formation of pus, as mentioned especially by L. Duncan Bulkley, and it seemed reasonable to assign it to some such influence in the cases reported.

DR. WILLIAM R. NICHOLSON, JR., reported a case of

MELENA NEONATORUM DUE TO THE BACILLUS PYOCYANEUS.

The case was that of a male born at term in the Maternity Hospital of Philadelphia. Nothing of note occurred until the sixteenth day when a stomatitis developed. The actual bleeding began the next day and at first showed itself as a free flow from the mouth and throat. On the next day the stools contained blood and clear blood was afterward frequently passed.

Death took place on the sixteenth day. Its cause was apparently acute anemia. The autopsy showed the presence of an acute triple infection, the organisms present being the staphylococcus pyogenes aureus, the bacillus aerogenes lactis and the bacillus pyocyaneus. Of these the first two were general infections. The bacillus pyocyaneus was found only in the bile and tissue of the liver.

The gross lesions found at autopsy were a generalized parenchymatous degeneration, a sclerosis of the pancreas, an acute enteritis and a commencing cirrhosis of the liver. There were no signs of syphilis other than sclerosis of the pancreas, a condition which occurs also in many other diseases as Kasahara has shown. There were no signs of ulceration detected.

The reasons given for considering the case to have been one of pyocyanic infection were: the negative history of the first sixteen days of life with the subsequent development of symptoms explainable only upon the assumption of an infection, and the detection of the bacillus pyocyaneus. The influence of the other two infections was considered to be predisposing. No explanation was given as to the manner in which the infection occurred but it was suggested that, as the ordinary means seemed out of the question, it might have depended upon a lack of cleanliness of the nipples of the mother.

DR. HAMILL in discussing the paper said it had interested him very much. In a number of autopsies he had made cultures from the liver, spleen, kidney, and the heart blood. In two instances the colon bacillus was present. This, however, is of no significance, since it is commonly found *post-mortem* in almost any portion of the body. In the other cases the inoculated tubes remained sterile. He believed with Dr. Nicholson that in the majority of cases of hemorrhage in the new-born the condition has an infectious origin. In one of his

cases dying from hemorrhage into the right suprarenal capsule with subsequent rupture into the peritoneal cavity, the bacteriological examination was negative. While it is probable that hemorrhagic disease of the new-born is most commonly of an infectious nature, it is unquestionably true that there are other ways of accounting for the isolated hemorrhages into the suprarenal glands; the location of the organ, the richness of its blood-vessels, especially of its veins, the proximity of the inferior vena cava which receives the blood almost directly from the gland on the right side, are probably indirectly responsible for the majority of these hemorrhages. As Droubaix has suggested, it is easy to understand how during labor pressure can be brought to bear upon the inferior vena cava and the suprarenal gland, located as they are between the liver anteriorly and the vertebral column posteriorly, thereby giving rise to congestion of the vessels of the glands which in some instances may result in hemorrhage. There has been comparatively little useful work done in the study of the cause of hemorrhagic diseases in the new-born, and he felt that Dr. Nicholson's contribution was therefore of unusual value.

DR. C. A. E. CODMAN reported

A CASE OF LEUKEMIA IN A BOY SEVENTEEN YEARS OF AGE.

The fairly good color of the skin and mucous membranes, the almost entire absence of symptoms, and the presence of a tumor in the abdomen of a boy, two of whose sisters had recently died—one of tuberculosis and the other of sarcoma—made the diagnosis without the examination of the blood, somewhat doubtful. The study of the blood, however, showed the true nature of the disease.

There was only 25 per cent. of hemoglobin—a surprisingly low percentage when one recalls the good color of the skin and mucous membranes. There were 2,730,000 red blood corpuscles and 443,600 white blood corpuscles—a ratio of 6 to 1. The differential count of the leukocytes was as follows: Polynuclear 50.9 per cent., mononuclear 9 per cent., transitional 4.5 per cent., lymphocytes 5 per cent., myelocytes 25.5 per cent., eosinophilic myelocytes 2.5 per cent., eosinophiles 3.6 per cent. Microcytes, macrocytes, poikilocytes and nucleated reds were present.

Current Literature.

PATHOLOGY.

Goulkewitch : Nephritis in Infants. (*Rev. Mens. des Mal. de l'Enfance.* Vol. xviii., No. 7.)

The kidneys of 220 infants from two to nine months of age were carefully examined at autopsy, and 23 found to be the seat of a nephritis. The primary disease in these 23 cases was pneumonia in 11, tuberculosis in 6, and enteritis in 6. It would seem that nephritis is more common in infants than is usually supposed. The influence of heredity in these cases should be carefully studied, and at least as much consideration given to the idiosyncrasy of the organism which facilitates infection, as to the pathogenic bacteria themselves.

Fletcher, H. Morley : Hypertrophied Brain. (*The British Medical Journal.* No. 2057.)

At a meeting of the London Pathological Society he reported the case of a boy, ten years old, whose head was unusually large in infancy, had been mentally backward and subject to headaches and fits. At autopsy the brain weighed 73 ounces, thus exceeding the heaviest recorded brains of adults. Histologically the enlargement was found to be due to an increase of neuroglia. Therefore the case was not one of hypertrophy, but of megalencephaly. The child showed no evidence of rickets.

Herzog, M., and Lewis, D. : Embryonal Renal Adenosarcoma. (*The American Journal of the Medical Sciences.* Vol. cxix., No. 6.)

A tumor weighing five and one-half pounds was removed by laparotomy from a child sixteen months old, apparently normal at birth and in good health until about three months before the operation. Death occurred thirty-one hours afterward. The growth was 58.59 cm. in circumference, nodular, encapsulated, with the kidney appearing as a compressed remnant, conical in shape, 6 cm. wide and 3 cm. high, projecting into a depression on its lower surface. Both macroscopically and microscopically two distinct portions were noticed in the tumor sections; one adenomatous, composed of

epithelial cells and connected tissue; the other composed of striped muscle fibres, for the most part embryonal in type, but some adult fibres. No kidney tissue was found in the tumor itself. The changes in the compressed portion of the kidney consisted of degeneration of the epithelial cells, chiefly in the convoluted tubules, and pressure atrophy of the glomeruli; there was an inflammatory reaction.

It is assumed that the renal adenosarcomata of childhood owe their origin to an inclusion formed by the cutting off of the nephrotome at an abnormal site, so that a part of the myotome is severed from the lateral cell mass and remains in connection with the nephrotome, in which the Wolffian body develops. If, then, part of this nephrotome to which tissue of the myotome adhere, becomes included in the permanent kidney, a matrix results containing all the elements of the mixed renal tumors. The epithelial glandular structures are derived from the excretory tubules of the nephrotome.

MEDICINE.

Hatfield, M. P.: Scarlatina; Its Nature, Causes and Treatment. (*The Medical Standard.* Vol. xxiii., No. 2.)

Personally he has never seen a typical second attack, and is inclined to believe that the majority of such cases are due to errors in diagnosis. Recrudescence of the disease or relapses as late as the third or fourth week are by no means uncommon, and are not inexplicable by the microbic theory of scarlet fever. Possibly, the repeated anginas of nurses caring for scarlet fever patients should be regarded as abortive cases of scarlatina without exanthema. Holt's division of the mild, severe and the malignant cases is accepted. The urine in all serious cases shows traces of albumin early in the disease. In scarlet fever of the malignant type, in which the cerebral symptoms predominate, death occurs within the first forty-eight hours from overwhelming toxemia. Death often comes before the appearance of the rash or complaint of sore throat. The hyperpyrexia is 105° to 107° F. The general resemblance to the congestive chill of tropical malaria is striking. The autopsy gives no sufficient reason for the death. A typhoid form is found in those cases where convalescence is slow and autointoxication has taken

place. The temperature is high and fluctuates as in septic cases. It should be remembered that the eruption of scarlet fever never begins on the face, but may be looked for earliest on the chest, thighs, or small of the back, if the child has been kept warm in bed. The time of the appearance of the scarlatinal eruption has not been uniform. It ought to appear in forty-eight hours after the initial sore throat, but does not without exception; nor does it always begin to fade in the same order that it appears. It may not make its appearance until the third day, or even as late as the fifth. As a general rule, it may be laid down that where the rash has not markedly faded within four days of its first appearance, a case of uncomfortable duration and general unpleasant complications may be looked for.

The initial temperature of 103° to 105° F. is always dangerously high for a child of unstable nervous system and continues so until the rash is well established. Secondary rise of temperature, subsequent to the fall of temperature, and after the full appearance of the eruption, indicates complications of some kind, hence the absolute necessity of a careful fever chart, even after convalescence is apparently established. Feverless scarlet fever sounds like a misnomer, but nevertheless should be remembered as a possibility. Desquamation is dependent upon the amount of death to the epidermis, as exfoliation is in direct relation to the extent of the initial eruption, the last of the exfoliation usually being found between the fingers and toes. As a general rule, it is safe to treat every case of sudden illness with inexplicable rise of temperature, from 102° to 105° F., with sore throat, as if it might be a case of scarlet fever. The most puzzling cases are not those of acute indigestion erythema, but the rashes that accompany other infective diseases, as diphtheria where there is sore throat, or those produced by apyretic drugs, as quinin or antipyrin. It should be remembered that it is entirely possible for scarlatina to be complicated with other of the exanthemata, especially with varicella, and also it should be noted that it is sometimes associated with measles.

Angina is always to be expected in scarlet fever, and pseudodiphtheria is frequently observed. Unless efficient local antiseptics is attained, the tonsils are covered with a soft, putrid, white material. As a result of this we find submaxillary adenitis and complications of the lymph nodes. An otitis media is frequently seen, with the result of permanent deafness. Pul-

monary complications are the most infrequent ones of scarlet fever. Nephritis is justly the most dreaded of the complications of scarlatina. A mild grade of renal catarrh is in all probability present in all cases of scarlet fever, no matter how light. In fact, in the mild cases the necessity for watching the kidneys is the greatest. If the child is kept warm in bed and on carefully selected diet, this form of renal catarrh usually disappears with the cessation of its cause about the end of the second week.

Jacobi, A. : Functional and Organic Heart Murmurs in Infancy and in Childhood. (*The Medical News.* Vol. lxxvi., No. 19.)

A colored infant, thirteen months of age, had pneumonia from which she partially recovered. There were pus cells in the urine. The temperature was remittent. She developed a systolic murmur which increased and in turn disappeared. She finally died, and at the autopsy there was discovered a recent pleurisy, but the heart was normal. It, therefore, appears that the murmur that existed in association with the pyemic temperature must have been functional. Extracardial murmurs, mostly systolic, differ from it, and are moreover very infrequent in childhood. It is believed that most symptoms indicate organic lesions either in the valves or the myocardium. Perhaps the commonest lesion in childhood is stenosis of the pulmonary artery. Sometimes there is persistence of the ductus arteriosus, and two cases were mentioned. The symptoms are a loud systolic murmur over the sternal end of the left intercostal space extending into the vessels of the neck, chiefly in the left side, and audible in the left interscapular space. There is also an area of dulness extending along the left margin of the sternum to the clavicle. The symptoms of stenosis of the pulmonary artery are a systolic murmur in the second left intercostal space that is not transmitted into the carotid, and the second pulmonary sound is feeble. Often the signs of congenital cyanosis are present. Very loud murmurs are not common in children, and organic symptoms may in some cases become inaudible when the heart rate increases. Myocarditis in children is apparently parenchymatous and usually follows various infections, such as influenza and diphtheria. What we call debility of the heart is a symptom of a great many different conditions. There is a congenital atrophy which is liable to lead to lipomatosis, there

are intoxications by infectious diseases, alcohol, syphilis, malaria, and tuberculosis; nutritive disorders, such as rachitis and scrofula, over-exertion and premature schooling with constipation, and subacute and chronic nephritis, one of the most frequent and most frequently overlooked diseases of early infancy. Reduplication of one of the heart-sounds, that is galop rhythm, is an indication of the exhaustion of the heart-muscle, and demands for its treatment absolute rest.

Councill, M. S.: A Case of Chronic Pneumonia. (*The Philadelphia Medical Journal.* Vol. v., No. 20.)

A baby of two years belonged to a large family, one of whom died of abscess of the lung and slow fever. When about one year old the infant had a severe pneumonia. After three weeks convalescence began, but it was slow, and he lost the use of the limbs on the right side. Eight months later he showed a dry, harsh skin, cyanosis and a hectic flush; the muscles were wasted and flabby; there were anorexia, constipation, and occasionally vomiting. The morning and evening temperatures were normal. He had only partial use of the right arm and leg. Night sweats were persistent, and there was a paroxysmal cough. Respirations were 44 and pulse 130.

The breathing was of a pronounced asthmatic type, with a recession of the suprasternal notch and intercostal spaces. Examination of the right side showed a bulging in of the intercostal spaces of the upper thoracic region, extending anteriorly down to the fourth interspace and then to the back of the lung, following the contour of the upper lobe of the lung. There were coarse râles and bronchial breathing over the area of dullness. A provisional diagnosis of chronic pneumonia was made.

The radiograph was of special value in this case, showing in an excellent manner the condition of the lung and confirming the physical examination. There is often a close resemblance between protracted pneumonia and tuberculosis, but the whole examination in this case tended to eliminate the latter disease.

It is stated that pneumonia, however persistent, is never hopeless, and there should not be undue haste in assuming that tuberculosis is present because the patient is wasted and anemic and the condition of the lung has remained stationary; and, when all the means of diagnosis have been exhausted, the cases of protracted pneumonia, in private practice, will be found more numerous than those of tuberculosis.

Clough, H. T.: The "Running" Ears of Childhood.
(*Journal of Medicine and Science.* Vol. vi., No. 6.)

Some of the conclusions given are as follows:

Emphasize the vital importance of curing a discharging ear, do not fall into the error of telling parents that these cases will take care of themselves. Nature does bring many of the acute cases, and an occasional chronic one to a favorable issue unaided, yet on the other hand, an untimely tomb-stone will often mark the method of nature's treatment. When a child gives evidence of a painful ear let that ear receive prompt attention, and, if an abscess is forming, every effort should be made to abort it. Failing in this, the abscess should be so treated as to bring the inflammation to a favorable termination—the discharge cured, drum-head healed, thus removing danger of extension, avoiding future attacks of the trouble, and restoring the usefulness of the organ.

Most important, in its relation to disease of the middle ear, is the condition of the nasopharynx. This should never be overlooked and any normal state discovered, therein, should be promptly removed.

Suppuration of the middle ear will respond to treatment most happily if taken early, but its stubbornness in the chronic state is disappointing to patient and physician alike.

Halle, J., and Langevin, G.: A Fatal Case of Chorea.
(*Arch. de Méd. des Enfants.* Vol. iii., No. 8.)

A girl of ten years, of neurotic family history, developed a severe case of chorea involving the face, tongue, pharynx, trunk and extremities. The movements became more and more severe in spite of treatment with baths and antipyrin, so that sleep was interrupted and the child's intelligence obscured. A torpid state followed, and death occurred three weeks after onset of the disease. At the autopsy the only lesion found in any viscus was that of congestion. Bacteriological examination of the blood taken from the left median cephalic vein on the day of death and from the heart after death showed the presence of streptococci in pure culture. These the author believes to have entered through cutaneous erosions or through the buccal mucous membrane, and to have had no etiological relation to the chorea. The chorea so lowered the child's resistance that the streptococci were enabled to cause the sepi-

cemia. The age of the child, the absence of the acute mania with hallucinations which usually accompanies fatal cases of chorea, and the absence of the usual anatomical lesions of such cases make the observation of interest clinically.

Friedman, F. F. : The Significance of the Tonsils in Young Children as the Point of Entrance for Tuberculous Infection. (*Ziegler's Beitsäge* γ . *Path. Anat. and* γ . *Allg. Path.* Vol. xxviii., No. 1.)

The tonsils of fifty-four living and ninety-one dead children were examined grossly and microscopically. All but one case was under five years of age, and he was seven. In seven cases of general tuberculosis, the tonsils showed a more or less marked tuberculous lesion; while in eight other tuberculous subjects the tonsils contained only cicatrices, probably the remains of an old, healed tuberculosis. On the other hand one case of primary tonsillar tuberculosis was found in a child admitted for diphtheria, and absolutely free (at autopsy) from any tuberculous focus except the very acute, diffuse tuberculosis of both tonsils, with many tubercle bacilli. In one other case the tonsils were the seat of the only tuberculous lesion found at autopsy, but the lesion had apparently healed and only one tubercle bacillus was found. In seven cases typical giant cells and nodules, but no tubercle bacilli, were present in the tonsils, other tuberculous lesions existing in two cases only. Three cases with tuberculous cervical lymph nodes had large tonsils containing many cicatrices which the author regards as the remains of a healed tuberculosis, from which the cervical nodes had been infected. Two cases of pulmonary tuberculosis did not present any tonsillar lesion; and two others had tonsils absolutely free from tubercles, but tubercle bacilli upon their free surface, as evidenced by smears made from them. In another case, that of a twenty-four days' old baby, not tuberculous, a single tubercle bacillus was found in smears made from the tonsils. Evidently this had been carried there by the food. All the remaining cases which came to autopsy were negative as to tonsillar tuberculosis. Of the cases examined during life, after tonsillotomy, fifty-two were absolutely free from tuberculosis of the tonsils, although six had enlarged cervical lymph nodes and many had adenoids. One case showed an apparently healed tuberculous lesion in the tonsils, and one

three-year-old child of good family history and apparently well, had a marked tuberculosis of the right tonsil with the presence of numerous tubercle bacilli. Although the source of infection in this case could not be ascertained with certainty, the tonsil had infected the submaxillary and cervical lymph nodes. Practically but two methods of infection are possible for the tonsils: primary, by the food; and secondary, by tuberculous sputum. In children both these methods are about equal in frequency. Theoretically infection of the tonsils is possible by means of the blood, the lymph stream and the inspired air; but instances of these are almost unknown. It is probably true that the tonsil never acts as the point of entrance for the tubercle bacillus without becoming infected itself. While the primary tonsillar lesion may heal without giving rise to further infection, this happens but rarely; in the majority of cases the cervical lymph nodes become involved, and the mediastinal, under certain circumstances, as well. Moreover, there is constant danger of the entrance of tubercle bacilli into the circulation.

Bonnaire, E., and Keim, G. : Canalicular Infection of the Parotid ; Researches on the Bacteriology of the Mouth in the Newly-Born. (*La Presse Méd.* 1900. No. 62)

A few days' old infant developed a hard edematous swelling in the left parotid region, and three days later another on the right side. The pus in the left swelling was expressed through the duct into the mouth; the right abscess was incised. Both the mouth and the stomach were washed after the treatment. Death occurred on the nineteenth day. Staphylococci in pure culture were found in the pus from both sides. The infection undoubtedly occurred through the mouth, ascending to the parotid glands through Stensen's duct. The mother's breasts were normal.

Bacteriological examination of the mouths of newly-born infants showed that bacteria were present in every case where the head had remained in the cervico-vaginal canal for any time after the rupture of the membranes, even though no digital exploration of the mouth had been made, or the baby put to the mother's breast. In two cases examined several hours after a rapid labor, the mouth of the infant was found to be sterile. Therefore, the mouth, at birth, almost always contains micro-organisms gathered from the vagina of the mother, and these

may cause infection of the mouth or adjacent cavities and glands, or even fatal septicemia, without the appearance of any external post-natal cause.

Villy, Francis: A Case of Pneumothorax Complicating Whooping-Cough. (*The Medical Chronicle*. Third Series. Vol. iii.)

The author refers to a case he reported in 1899 and gives the notes of a case in a boy of three years, who had suffered from a severe attack of faucial diphtheria combined with whooping-cough. In addition he had an attack of measles which was complicated by otitis media. The faucial condition had improved when the cough became severe and the attacks numerous. The pulse rate was rapid and the breathing was quickened, but there were no abnormal physical signs. The heart seemed normal except for a shortening of the first sounds. One month after the boy was admitted to the hospital he had numerous small râles at the base of each lung. Two days later it was thought that the percussion note at the left base was extra resonant but the other signs were unchanged. A hypodermic needle was introduced below the angle of the left scapula and it immediately filled with gas. As there was no bubbling of air and no resistance it was known that the syringe had not entered the lung. The physical signs in the chest remained unaltered but owing to the serious condition of the patient it was decided to relieve the chest of the gas. This was done with a needle and aspirating pump under chloroform anesthesia. No pus was evacuated. There was no immediate relief but the difference in the physical signs had disappeared by the next day and the child steadily improved. Bronchial breathing and fine râles were rather persistent at both bases, no doubt due to small patches of bronchopneumonia.

The child made a good recovery.

Katz, A.: Some Researches on the Thymus in Children. Statistics of Sixty-one Cases. (*Le Progrès Méd.* Vol. xxix., No. 25.)

The cases ranged in age from one month to thirteen years, and the diseases causing death were various. The thymus was found in every case, which fact is interesting when compared with Bourneville's statistics of imbecile, idiotic, epileptic and mentally deficient children, in which no trace of the thymus

gland could be found in twenty-five of twenty-eight cases. The weight varies greatly, and there is no definite relation between the body weight and that of the thymus gland; nor is the time of its greatest development constant.

Thirteen children, aged nine months to four years, died of diphtheria. The thymus gland in every case weighed more than 5 grammes, and in one case 18 grammes. Hérard found the average weight of the thymus to be $1\frac{1}{2}$ to 4 grammes, of 10 cases in which the thymus ranged from $7\frac{1}{2}$ to 37 grammes, six died of croup. The hypertrophy in cases of diphtheria seems to be something more than accidental. Of the pathological changes, multiple hemorrhages were found in 1 case, and a tuberculous lymph node was embedded in the thymus gland in another.

Bourneville continued his studies on mentally abnormal children, and found the thymus present in 27 per cent. only, 78 of 292 cases. It would seem that the thymus gland disappears at an earlier age in abnormal than in normal children.

Gow, James: A Case of Morbus Coxæ Masked by Coexisting Acute Articular Rheumatism. (*The Canada Lancet*. Vol. xxxiii., No. 9.)

A boy of eight years had pain in his left knee and a diagnosis of acute rheumatism was made. The knee was slightly swollen, was not reddened but was hotter than the opposite side. There were evidences of an old endocarditis.

Several days later the right ankle became affected with the same symptoms and then the right hip joint was involved. The temperature went up as high as 105°F . There were nocturnal delirium and great irritability. The symptoms improved under treatment but as the temperature presented some features that seemed septic an examination under chloroform was made and it was found that the left hip was rigid. It was thought that the trouble in that joint was tubercular and extension was used with great relief. The temperature fell to normal in twenty-four hours. The other joints did well.

The result of the examination under an anesthetic was regarded as of value in determining the true cause of the temperature after the subsidence of symptoms in the joints affected with the rheumatism.

Russow: Case of Myxedema in a Child. (*Die Medicinische Woche.* No. 30. 1900.)

A child, two and a half years of age. The size, weight and circumference of the head were those of a child one year old; the large fontanelle had not quite closed, skin and face were pallid, the expression was stupid, and the tongue protruded between the lips. The child's voice was hoarse, almost ferocious, the thorax showed traces of rickets, the bones of the pelvis were thickened, and the long bones were shortened and bent; the skin over the hands and feet was cyanotic. The child had eight teeth which had appeared during the second year; its pulse was 80 to 90 and feeble. Temperature, heart and lungs were normal. The number of red blood corpuscles was 3,448,000—hemoglobin, 52 per cent. The parents of the child were young, healthy and users of alcoholic stimulants only in moderation. The child was treated by thyroïdin in doses of three-quarters of a grain twice a day. Within three days under this treatment the child became quieter; the tongue commenced to recede after five days and at the end of two weeks the number of red corpuscles had increased to 4,350,000 and the hemoglobin to 60 per cent. The child was treated periodically with thyroïdin and continued to improve bodily as well as mentally. Later it was taken sick with measles, and died of intercurrent pneumonia.

Hatfield, M. P.: Parotitis Epidemica. (*The Medical Standard.* Vol. xxiii., No. 6.)

Little is known concerning the microbic origin or parotitis epidemica except that its contagion has little vitality outside the human body, and consequently cannot be easily carried from one person to another. Hence it is not unusual to see in a hospital the spread of the disease from bed to bed stopped by a glass door or intercepting wall. Capitan (1881) thought he had succeeded in isolating from the blood and saliva the specific microbe of mumps, and Ollivier and Boinet (1885) described similar microorganisms obtained from the same source, which Bordas (1889) later named bacillus parotidis. Laveran and Catrin have elaborately experimented bacteriologically, and believe the pathognomonic microbes can be found, not only in the blood and saliva, but also in the fluid obtained from puncture of the testicles and parotids during the disease.

It is rarely a fatal disease. Microscopical examination of the parotids by Ranvier gave no inflammatory lesions nor loss of epithelium nor cellular proliferation.

The possibility of a nephritis following mumps should be borne in mind. Albumin has been found in the urine of 30 per cent. in a series of cases.

There is also a risk of diabetes mellitus due to changes in the pancreas.

The symptomatology, complications and treatment of the disease are described.

Douglas, Charles: Infantile Nephritis. (*The Physician and Surgeon.* Vol. xxii., No. 5.)

Nephritis in infancy is still less frequent than nephritis in childhood. Many attacks are probably too slight to be recognized by an edema. The diuretic quality of milk no doubt lessens some of the symptoms in infantile cases. The surplus capacity of the infant's kidneys is such that there is a more perfect repair than in childhood.

Four cases of nephritis are reported. The ages were six months, fourteen months, five months and ten months. The baby of six months had been nursed for two months and then fed on cow's milk, condensed milk and proprietary foods. There were vomiting and diarrhea with loss of weight. The urine showed albumin.

The baby continued in a weak state until eight months old, when he died.

The other cases gave histories of improper feeding and disturbances of digestion. Albumin was found in the urine but all the cases recovered.

References are made to the literature of nephritis in infancy and childhood.

Handford, Henry: A Note on a Series of Cases of Epidemic Cerebrospinal Meningitis. (*The British Medical Journal.* No. 2063.)

Five cases were observed. The ages of four were three, four, five and fourteen years. One case was fatal after an illness of fourteen weeks. The others recovered or were under treatment at the time the report was made. One was complicated by suppurative choroiditis.

The most prominent symptoms common to all were:

1. Rapid, if not actually sudden, onset, without injury or previous failure of health.
2. Fever—the temperature rose at once to 102° to 104° and very slowly subsided, sometimes showing distinct and regular intermissions. In 3 cases (1 fatal) the temperature remained normal for weeks without any other sign of improvement.
3. The intensity of the pain in the head and neck, aggravated by the slightest movement.
4. Marked retraction of the head.
5. Muscular hypertonicity, twitching or rigidity.
6. Extreme and rapid emaciation.
7. Tendency to relapse and to intermissions.

Lumbar puncture was not practised during life. In the fatal case some turbid fluid was removed by lumbar puncture two hours after death and sent away for examination, but owing chiefly no doubt to unavoidable delays, the results by cultivation and otherwise were negative.

There was distinct exudation over the under-surface of the cerebellum, pons, and medulla. It did not extend so far forwards and did not spread to the Sylvian fissures as in tuberculous meningitis. No tubercles were detected in the exudation or in the viscera. The hemispheres appeared normal. The ventricles contained about 10 ounces of slightly turbid fluid. The choroid plexuses were adherent to the ependyma of the ventricles. On removing the spinal cord, a blood clot was found between the dura and the bone as far as the eighth dorsal vertebra. At the ninth dorsal, there was a small hemorrhage beneath the dura. The membranes were intimately adherent to the cord in the cervical and lower dorsal regions.

The cases differed in their clinical course very decidedly from tuberculous meningitis. The onset was more acute, the retraction of the head much more marked, the duration of the disease much longer, and percentage of recoveries far greater. None of the 5 cases had herpes, and only 1 showed some patchy erythema.

Clinically, the distinction between individual cases of posterior basic meningitis, sporadic cerebrospinal meningitis, and epidemic cerebrospinal meningitis seems impossible. Bacteriologically, the distinctions between the diplococcus meningitidis intracellularis found in cerebrospinal meningitis and that found

in posterior basic meningitis seems chiefly one of degree, shown by slight cultural variations and less or greater virulence in inoculation experiments.

As regards treatment, morphin was given in full doses to relieve the intense pain. It appeared to do good beyond the mere relief of pain. In 3 cases potassium iodid appeared to do good; in 1 it was evidently prejudicial, and in 1 without distinct effect.

Kissel: Scorbutus in Twins. (*Gesellschaft der Kinder-ärzte, Moskau. Die Medicinische Woche.* No. 31. 1900.)

The children observed by the author were taken ill simultaneously. They were restless and pale; after two or three days they showed circumscribed swellings, painful upon pressure, on the extremities. The family history relative to tuberculosis, alcoholism, syphilis, hemophilia or rachitis, was negative. Both children were well at birth, and had taken the breast exclusively for four months, after which time they were fed on boiled milk and bread. The girl suffered from frequent attacks of diarrhea, and showed signs of rachitis at the age of one year. Teething was late in both children. Examination of the boy showed irregular hard swellings over both humeri. The lower portion of the left thigh was also swollen; the skin over the knee joints tense and infiltrated by diffuse hemorrhages. A similar swelling was found on the right thigh. The joints were freely movable, although there was some crepitation. A small hemorrhage was discovered in the left eye, and the free edge of the gums were somewhat swollen and softened. Temperature normal. The same changes were observed in the girl. After a few days, there was increased swelling of the bones of both patients, which at times apparently caused much pain, as the children cried incessantly. Complete disappearance of the swelling was never noticed. At one time there appeared in the boy a fissure in the skin over the knee, within the hemorrhagic area, from which quite a hemorrhage occurred. He was subsequently taken ill with the measles, to which he succumbed with symptoms of cardiac paralysis. The girl, too, was taken ill with the measles, of which she also died. The treatment for the scorbutus consisted of good nourishing food with administrations of sodium iodid.

Mott, Frederick W. : Degeneration of the Neurone. (*The British Medical Journal.* No. 2063.)

Of all the causes of nervous disease, hereditary predisposition stands pre-eminently first. Strictly speaking, it is the tendency to nervous disease rather than the disease itself which is inherited.

The family diseases are: hereditary ataxia (Friedreich's disease), hereditary chorea, amaurotic idiocy and paramyoclonus multiplex.

As far as they go, statistics show that the most important cause of congenital imbecility is inherited neuropathic taint, but that alcoholism, tuberculosis and syphilis are important contributory factors. The author's own views, based on his cases of juvenile general paralysis, show (1) that the disease affects both sexes equally; (2) that it may commence at any age from eight to twenty-three years; (3) that in 80 per cent. of the cases there were either undoubted signs or history of congenital syphilis, and that in 20 per cent. it could not be excluded.

Another factor which seemed to have an important bearing upon the occurrence of general paralysis in children of parents suffering with syphilis was the existence of chronic alcoholism in one or both of the parents.

Samuels, A. : Typhoid Fever in an Infant Eighteen Months Old ; Recovery. (*The New York Medical Journal.* Vol. lxxii., No. 4.)

A baby of eighteen months had been nursed by the mother until the illness began. Small quantities of unboiled water were given between the nursing periods.

Blood examination: Red corpuscles, 1,500,000; white, 35,000; hemoglobin, 30. Widal's reaction. No plasmodia malariae. Cultures from the feces showed Eberth's bacillus.

The bowels were constipated through the attack; liver was normal; spleen enlarged. The temperature, which ran high, lasted for twenty days and dropped by crisis. The convalescence was rapid and uninterrupted. Anemia and aphasia were noted as complications. During the illness nursing was discontinued and an artificial food was substituted. Cold lemonade made with sterilized water was administered to reduce the tempera-

ture and relieve the thirst; olive oil enemata were used for the constipation.

As the case was not seen early no history of the rash was obtained. It was probable that the unboiled water given to the baby caused the disease.

Smith, H. E. : Conjunctival Diphtheria. Risk of Infection. (*The British Medical Journal.* No. 2063.)

A child, aged two years, had a slight sanious discharge from the right eyelids, which was thought to be diphtheria. The parents said that there had been a "cold in the right eye" for three days, but they had attached no importance to it. On examination no membrane was found, but a specimen of the discharge had cultivations made from it, the result being that typical diphtheria bacilli were found. There was no lesion of the throat nor of the nose, and there had been no other cases of diphtheria in the same house.

The site of the local lesion is, of course, unusual, but the chief points of interest are: (1) the cause of illness might easily have passed unnoticed; (2) infection might readily have been spread; (3) the origin of such spread would probably not have been recognized.

West, H. A. : Report of a Case of Meningitis Following Measles; Recovery. (*Annals of Gynecology and Pædiatry.* Vol. xiii., No. 9.)

A nervous delicate girl of eleven years had an attack of measles. Four days later her temperature was 104.5° F. in the axilla; she had pain in the left ear, dizziness and sore throat. The tonsils were red and swollen, but there was no exudation in the throat. Physical examination of the lungs was negative, except a slight bronchitis. There was a decided tendency to somnolence, which deepened into a profound coma and the child became totally unconscious. The temperature was persistently high; pulse was 110° to 120°. The pupils became contracted and did not respond to light. Some strabismus was noted. The senses were all completely obtunded. The amount of urine was fairly abundant but it was albuminous. Nausea, vomiting and diarrhea were present during the eruptive stage of the measles, but at the advent of the secondary fever there was no more vomiting and the bowels became constipated, and

when they were moved by purgatives, the stools would occur involuntarily. After being in this condition for about a week, there was a gradual restoration of the mental functions, subsidence of the fever and abatement of all symptoms. The girl was unable to move the lower limbs until ten days after she became conscious, though sensation was present. At the end of a month, aside from marked anemia and muscular weakness, the normal conditions had been restored. There seems to have been no question that it was a case of meningitis, probably from infection by the influenza bacillus, as la grippe was epidemic at the time and the mother had an attack while nursing the child. The catarrhal condition of the air passages predisposed to influenza infection and the symptoms were those of the nervous type of that disease.

The treatment was by cold sponging, ice cap and potassium iodid. Calomel was also used. During the comatose period, milk, nutritious broths and water were given as freely as possible.

Moir, J. W. : Roetheln. (*British Medical Journal*. No. 2053.)

Two symptoms were looked for; first, the possibility of recognizing the primary invasion; second, the importance of the involvement of the lymph nodes.

From the author's observation it seemed possible to show that in the first invasion by the poison an impression was made sufficient to cause a slight rise of temperature with slight headache, with perhaps some little mottling of the skin. These symptoms disappeared, but on the fourteenth to the sixteenth day they developed the full symptoms. At this later stage, in practically every case of this epidemic, involvement of the lymph nodes was pronounced and unmistakable, the mastoid, posterior cervical and occipital regions being affected, all, one or other. This swelling preceded the rash by a few days.

Waldo, F. J. : Summer Diarrhea, with Special Relation to Causation and Prevention. (*The Lancet*. Nos. 4002, 4003, 4004.)

The Royal College of Physicians, London, recommends the use of the term "epidemic enteritis," or, if the practitioner prefers, "zymotic enteritis," at the same time discouraging the use of such synonyms as "gastroenteritis," "mucoenteritis"

and "gastric catarrh" in filling out death certificates. It is hoped that greater accuracy in the statistics of summer diarrhea and of zymotic diseases generally will be attained thereby.

Summer diarrhea is an acute specific disease characterized by gastrointestinal irritation and general sepsis. It is epidemic in the summer months, although sporadic cases occur throughout the entire year. Usually it begins with an incubation stage, followed by fever, vomiting, diarrhea and general sepsis, the last evidenced by skin rash, fever, prostration, nervous irritation and such complications as bronchitis, bronchopneumonia and nephritis. Diarrhea may be trifling in amount and of short duration, even in fatal cases; as a rule, however, it is the constant and prominent symptom, though it has no specific character. Classification may be based upon clinical symptoms (Fotheringham), bacteriological findings (Booker, Blackader), or anatomical considerations. Statistics show that during the last forty years the deaths from diarrhea and enteritis have maintained a fairly steady average in England and Wales, and that there is no close relation between the mortality from enteric fever and from diarrhea. Analysis of the diarrheal mortality of children under five years of age, in the various counties of England and Wales, emphasizes the contention that diarrheal diseases are first and foremost the result of strictly local conditions.

Among the predisposing factors in the disease are: age (under three years), sex (slight preponderance of boys), season (July, August and September), environment, and hand-feeding. Dr. Hope, health officer of Liverpool, studied 1096 cases of infantile diarrhea occurring during the third quarter of the year 1899. Of these 232 were under three months of age, 244 from three to six, 363 from six to twelve, and 257 over twelve months old. Only 225 infants were breast-fed; 135 were given the breast and the bottle; 562 were fed on the bottle and some artificial food, and 174 ate a miscellaneous diet. The investigations show that the mortality from autumnal summer diarrhea among breast-fed babies under three months of age is 20 per 1000, even when every care is exercised. In artificially fed infants of the same age the mortality rises to 300 per 1000, or fifteen times as high.

There seems little reasonable doubt that summer diarrhea is a microbic disease, which is local at first and afterwards becomes general; and the investigations of Booker, Escherich and Klein

point to the correctness of the assumption that the disease may be the result of infection with various organisms (streptococci, bacillus coli communis, porteus vulgaris, etc.). The communicability, under certain circumstances, must be admitted. In considering the source of infection, polluted dust suggests itself as the vehicle of distribution, and horse-dung, possibly, as the specific polluting material. Boresfield found 31 varieties of bacteria in the feces of the horse, among them the bacillus coli communis and the porteus vulgaris, thus proving that certain microorganisms are common to the intestines of horse and man, and suggesting for future experiment the question as to whether any definite organisms are pathogenic alike to the gastrointestinal tract of both. The feces of the cow might also be investigated. Inquiry discovered the fact that diarrhea is not specially prevalent among the families of stablemen who live in mews; but this can be explained by the cleanliness of such places and the fact that the dung is stored and cleared away without having any chance to become dry and powdery.

The curative treatment leaves much to be desired. Intestinal antiseptics have proved disappointing, and castor oil and calomel are the best purgatives. It is an excellent plan to keep the child on plain sterile water for twelve hours or more; predigested milk, pepsin and pancreatin are of service. In colitis or enterocolitis intestinal irrigation is of value. Sterilized water or normal saline solution may be injected cold to reduce fever, or hot for prostration and collapse. Astringents are useful in the later stages, and serum treatment promises future help.

The preventive treatment includes proper artificial feeding, the care of milk from source to consumption, ventilation, drainage, water supply and the disinfection of the specific bowel discharges of patients. Systematic street cleansing is one potent means for preventing diarrhea. Asphalt or cement pavement lends itself best to thorough cleansing methods, and the use of sea water, owing to its distinctly inhibitive action in the growth of germs, is worthy of careful consideration. It is likely that the addition of chlorin or permanganate of potash to the water in the sprinkling carts might be of value. The lessened prevalence of diarrhea in wet summers is explained by the fact that the rain washes the air and cleanses the surfaces of dust, carrying away the germs it contains in the surface and storm water, thus acting as a "natural scavenger." The water supplies of cities for

public cleansing purposes should be free and unstinted. The width of streets, their grading, the grouping of houses and the paving of roadways all require careful attention in dealing with the problem of the prevention of summer diarrhea.

Stokes, C. E.: Two Cases of Bromoform Poisoning; Recovery. (*The British Medical Journal.* No. 2056.)

A number of children were being treated for whooping-cough with half-minim doses of bromoform, which was administered suspended in mucilage of tragacanth. The bromoform must have accumulated at the bottom of the bottle and it was not properly shaken at the time of administration, so that it was probable that the children had three or four minims each of pure bromoform. The elder child was four years of age and the younger two. They were unconscious, lying side by side, with breaths smelling strongly of bromoform, faces pale, eyes closed, pupils contracted and limbs flaccid. The elder had feeble respiration. The younger had stertorous breathing which ceased altogether and artificial respiration had to be resorted to. Later artificial respiration had to be used for the elder child. They were given brandy hypodermically and strychnin. The stomach was washed out with hot water followed by strong coffee. The younger child rallied first and began to breath spontaneously after an hour and a half's artificial respiration. The elder child remained drowsy and stupid for some hours. The symptoms supervened two hours after the administration of the bromoform.

Harlan, H.: A Case of Measles, Scarlet Fever, Diphtheria, Otitis Media, Mastoiditis, etc. (*Maryland Medical Journal.* Vol. xliii., No. 5.)

An attack of measles in an eighteen months old boy was followed by otitis media and otorrhea on the left side. Four months later scarlet fever occurred, and diphtheria immediately afterward. Both ears became inflamed and discharged; there was absolute deafness and paralysis of the left arm and leg. These gradually improved under treatment, but the cervical lymph nodes began to suppurate, and were opened. Summer diarrhea supervened and a mastoiditis necessitated operation about four months after the diphtheria attack. The general condition was so bad that only an incomplete mastoid operation

was attempted, and pus evacuated. A few weeks later he had an attack of pneumonia complicated by empyema, and a piece of one rib was removed in order to drain the pleural cavity. Improvement then began, and the appearance of chicken-pox was of small moment. Although pertussis developed among children in the same house, he escaped an attack. The ears continued to discharge, and finally, fourteen months after the onset of his first illness, a complete mastoid operation was done on the left side and much necrosed bone removed. The wound healed quickly, the hearing became good, the aural discharge ceased, and the general condition became excellent, so that he passed through a severe attack of pneumonia successfully.

Campbell, W. M.: Pseudo-Hemoptysis in an Infant.
(*The British Medical Journal.* No. 2062.)

An infant five days old was noticed to have blood coming from its mouth, and showed blood in the movements of the bowels. The child appeared perfectly well and no lesions were found in the mouth nor in the mother's nipples. The next day the baby vomited a large quantity of blood. The melena was very marked. Further examination of the mother showed a small crack in the right nipple. No blood could be expressed, still it was felt that that might be the source of the blood. Soon after nursing it was noticed that the baby's mouth was again full of blood. The nursing was stopped and the symptoms disappeared.

Sweeney, Arthur: Mirror-Writing, Inverted Vision, and Allied Ocular Defects. (*The St. Paul Medical Journal.* Vol. ii., No. 6.)

The direction in which writing runs is conventional, depending upon custom rather than upon any peculiarity of nervous structure.

Mirror-writing first came into general notice through the work of Buchwald and Erlenmeyer, in 1879, and since then it has been the subject of occasional comment at the hands of many writers, who have not shed much light upon the peculiar psychological conditions which produce it.

Mirror-writing is a form of writing unconsciously performed by some, in which the position and direction of the letters are

reversed, so that it can be read only by the aid of a mirror, or by holding the paper to the light and reading from the back. Left handed persons seem to have a special tendency to write in mirror style. In cases of mirror-writing following cerebral disease, there is evidently something more than an organic lesion at work, for the reversal of position in space is limited to the horizontal plane. Evidently the destruction of centres of vision in the left hemisphere is not sufficient to explain the phenomenon.

A girl of thirteen, well-nourished but nervous, was mentally and physically of normal growth and development. Eye movements were normal, but she had a slight degree of astigmatic hypermetropia, for which she wore glasses. While wearing glasses she wrote normally in a free, clear hand. Usually, however, without the glasses she wrote copy backward as well as inverted. There was evidently a defect of the perceptive centres, as when she was asked to spell she spelt the words backwards, or named objects as being on the side opposite to which they were. In copying from a book she began with the last letter in each word, writing from right to left, and correcting by reference to the copy the mental form of the word so that the copy was legible. There was complete inversion of vision, both vertically and laterally.

In commenting on the cases reported in the literature of the subject he states that it was evident that visual defects in all these cases were at the root of the inversion of objects, and that it was the overpowering influence of the reflex act of accommodation that prevented the proper reception by the sensorium of the impressions conveyed by muscle-sense, which, being unconscious and of relatively slight intensity, were not able to enter into association with impressions of sight and touch in the presence of a more powerful stimulus. The fact that the removal of the reflex of accommodation by glasses caused a proper transposition of the image, by allowing the muscle-sense to act undisturbed certainly adds weight to the theory.

Whether all mirror-writing is due to this cause cannot be determined, because most cases have been reported as curiosities rather than as serious studies of a defect, and no information is obtainable as to the condition of vision or muscular equipoise.

Morse, J. L.: **The Frequency of Rickets in Infancy in Boston and Vicinity.** (*The Journal of the American Medical Association.* Vol. xxxiv., No. 12.)

A study of 400 infants showed that only 20.5 per cent. were free of signs of rickets.

A rosary is the most common symptom of rickets, in fact it is an invariable symptom. It may be developed very early, even in the first month of life. It is the only symptom in about 40 per cent. of the patients under two years old. It is accompanied by but one other symptom in 20 per cent. of the patients. This associated symptom is most frequently delayed dentition; next, enlarged cranial eminences. Delayed dentition occurs in more than 50 per cent. of all cases. Enlarged cranial eminences are present in about 20 per cent. Abnormal size of the anterior fontanelle, retraction of the chest at the insertion of the diaphragm, with flaring of the lower ribs, and enlargement of the epiphyses each occurs in about 15 per cent. Although these deformities are occasionally found in infants as young as four months but few of them are met with under nine months; that is, compared with the rosary, they are symptoms of somewhat late development. This is more evident when we consider that the majority of the patients were not over nine months old. Enlargement of the parietal eminences is much more common than that of the frontal. Craniotabes is very unusual. Other deformities of the chest, besides retraction at the insertion of the diaphragm and flaring of the lower ribs, are rare. Enlargement of the epiphyses at the wrists is common; of those at the ankles, rare. Deformities of the long bones of the extremities are uncommon under one year of age. Bow-legs is by far the most frequent form. Weakness of the spine and abdominal enlargement are met with in about 15 per cent. and splenic tumor in about 8 per cent. of the cases of rickets in patients under two years old. These symptoms, while probably due in many cases to the rickets, are certainly not in all.

The diet of the 180, not over nine months old, was as follows: breast only, 31; breast and cow's milk, 20; breast and condensed milk, 11; breast and general diet, 12; breast and proprietary foods, 3 (=77); modified cow's milk, 17; cow's milk and water, 24; cow's milk and general diet, 7; condensed milk, 26; condensed milk and general diet, 2; various proprietary foods, 27.

CONCLUSIONS.—The following conclusions seem to a certain extent justified: 80 per cent. of the children under two years old, of the poorer classes of Boston and the adjacent cities, have rickets. A rosary is not a normal phenomenon but is an evidence of rickets. It is a constant symptom of rickets. It is the earliest symptom to develop and in 40 per cent. of all cases in patients under two years old, is the only symptom. The next most common symptom is delayed dentition. Other symptoms, while they may show themselves at any age, do not, as a rule, develop earlier than the tenth month. The cause of rickets in Boston and vicinity is to be found in improper hygienic surroundings rather than in race or diet.

Poynton, F. J. : A Study of the Heart-Wall in Diphtheria, Rheumatic Fever and Chorea. (*The Lancet*. No. 4002. 1900.)

The object of the paper is to bring forward evidence in support of the view that in cases of rheumatism the poison of that disease has a direct effect upon the cardiac muscle, similar to the action of the diphtheria poison. Investigations were made in 18 cases of rheumatic heart disease, 4 cases of diphtheria, 1 of chorea and 1 of septicemia in a rabbit inoculated with pure culture of staphylococci. The case of each is described in detail.

1. DIPHTHERIA.—The five years old patient developed signs of cardiac failure in the course of an attack of faucial diphtheria. There were pallor, vomiting, restlessness, extremely feeble pulse and almost complete suppression of urine; no evidence of neuritis. Death occurred on the seventeenth day from heart failure. At the autopsy the kidneys were congested, but showed no indication of nephritis. The cardiac muscle was pale and microscopically gave evidence of marked degeneration; in the variability in size and staining properties of the nuclei, vacualization of the protoplasm around the nuclei, loss of transverse striation of the fibres, and irregularities in contour due to shrinking and fatty changes. The pericardium was not inflamed nor was there any increase in the fibrous tissue of the ventricular wall. These changes are similar to those described in the heart-wall of animals experimentally inoculated with diphtheria toxins.

2. RHEUMATISM.—Boy aged nineteen years had had three previous attacks of rheumatism, the first when seven years old. There

was cyanosis, fever, rapid, feeble pulse, dilated heart, with evidence of old mitral disease, pleural and pericardial friction and orthopnea. At the autopsy there was recent pericarditis, extreme pallor of the heart muscle, old mitral stenosis, and recent vegetations upon the previously uninjured aortic valves. Microscopically the muscle fibres showed fatty degeneration, but on whole the changes both in the nuclei and in the muscle cells were less marked than in the case of diphtheria. In previous papers the author has alluded to the occurrence of inflammatory foci in the heart-wall of rheumatism patients, similar to those which occurred between the muscle fibres in the case of a rabbit dying six days after being inoculated with staphylococci in pure culture. The organisms were found in such foci, as well as in pyemic abscesses in the kidney. There is a close relation between rheumatism and septic infections.

3. CHOREA.—The movements were extremely violent. Only a slight mitral inflammation was present. Microscopically patches of fatty change were found in the heart muscle, and foci of inflammatory exudation comparable to those present in the rabbit's heart. Numerous microorganisms were found in the ventral valve and in the vessels at its base. The close resemblance between this condition and that found in the rabbit's heart is suggestive, and both seem to strengthen the probability that rheumatism directly injures the cardiac wall. In the case of rheumatism reported the pericarditis was of such recent date that the myocarditis could not have been secondary to it, nor could the comparatively slight valvular lesion have caused it. The most probable explanation is the direct effect of the rheumatism poison. This does not imply that this poison is necessarily the result of a microbic infection, but the infectious origin of rheumatic fever appears to rest on very strong evidence, absolute proof being still lacking.

Practically the direct action of the rheumatic poison upon the cardiac muscle is of importance in connection with the part which active rheumatism takes in the history of rheumatic morbus cordis. This concerns especially the first attacks met with in childhood. The myocardium may show signs of rheumatic disease before the valves or pericardium, and if the development of incurable rheumatic heart disease is to be arrested, the best opportunity will be before definite proof of its existence is demonstrable by a valvular murmur.

The fact that the poison of diphtheria destroys the muscle fibres far more than the poison of rheumatism does possibly explains the clinical fact that while the dilatation in diphtheria is not so marked as in rheumatism, the tendency to a fatal termination is vastly greater.

SURGERY.

Gamgee, Leonard: **The Treatment of Mastoid Abscess and the Radical Cure of Chronic Suppurative Otitis Media in Children.** (*The Birmingham Medical Review.* Vol. xlvii., No. 259.)

It must be borne in mind that for the treatment to be satisfactory not only must the mastoid abscess itself be cured but the accompanying suppurative otitis media must be cured also. Fifty-one cases were operated upon, and the following rules are suggested:

1. When on opening the abscess the periosteum is found to be still adherent to the bone, it is sufficient to simply drain the abscess cavity. But in that case the radical operation may be necessary for the cure of the suppurative otitis media. It will probably only be necessary in chronic cases and should be performed as a secondary operation after the abscess has healed.
2. When there is a mastoid abscess present, but there is no suppurative otitis media and no history of any discharge from the meatus, the abscess should be drained and the mastoid antrum opened and all carious bone and sequestra removed.
3. When the mastoid abscess has appeared within three months after the commencement of the suppurative otitis media the same treatment suffices as in class 2. (Cases that have a mastoid abscess that has formed three months after the first appearance of the discharge of pus from the meatus.)
4. When the suppurative otitis media has existed for more than three months before the appearance of the mastoid abscess, the ordinary operation is quite inefficient as regards curing the purulent discharge from the middle ear, and in these cases the radical or Stacke-Schwartz operation should be done, and in the majority of cases the result is successful.
5. In cases where the abscess has formed without any history of the discharge of pus from the meatus, in cases mentioned above as class 2, and in cases in which the mastoid abscess has

appeared more than three months after the appearance of pus from the meatus, if the abscess recurs or if the otorrhea persists and it is thought advisable to cure it, again the radical operation should be done.

Schweitzer: Treatment of Noma. (*Die Medicinische Woche.* No. 27. 1900.)

The author describes the treatment used in the Olga Children's Hospital at Moscow. After the first examination all necrotic tissue is removed with a sharp spoon, the ulcer carefully cleansed with boric acid solution, or with 0.1 per cent. solution of potassium permanganate; the entire denuded surface is then rubbed over with powdered iodoform, and covered with a dry dressing. If it is impossible to remove all necrotic tissue at once, the ulcer is covered with strips of gauze saturated with potassium permanganate solution, and the curetting repeated on the succeeding days. The ulcer is cleansed twice daily; while the iodoform is applied only once each day. Great attention is given to the nutrition of the child, and the maintenance of a pure air supply. This treatment has been successfully employed in six cases. One child died of general infection, of which it showed symptoms on admission.

Ssokolow: Case of Noma Treated by Red Light. (*Die Medicinische Woche.* No. 30. 1900.)

He reports the case of a child four years of age, who after passing through an attack of the measles complained of toothache, and developed a swelling on the right side of the face about a week prior to admission to the hospital. A small papule appeared which soon developed into a perforating ulcer. Upon admission there was found on the right cheek, over the inferior maxilla, an ulcer about one and a half inches in diameter extending down to the bone. The margins of this ulcer were somewhat swollen, while its surface discharged large quantities of an offensive fluid. Ssokolow employed the rays of an incandescent lamp of 25 candle power, covered with a red globe, which was held at a distance of about six inches from the ulcer. This treatment was employed for half an hour daily; subsequently it was used two or three times per day for periods of from one to two hours each. In the intervals the ulcer was dusted over with boric acid and covered with absorbent cotton, held in place by

pieces of red flannel. After seven or eight seances, the offensive odor had disappeared, the necrotic portions were thrown off from the ulcer, over the surface of which granulations sprang up, while the margins commenced to cicatrize.

The necrotic portions of the lower maxilla were thrown off spontaneously, in part, while other portions were removed with the bone forceps. After two months of treatment the ulcer had narrowed to such an extent as to admit only a probe, and the child had gained two and one-half pounds in weight. He explains the beneficial effect of the red light by saying that it excludes from the organism those chemical rays of the spectrum which affect it unfavorably. In this case there existed insufficient nutrition in the skin and muscles of the inferior maxilla.

Cotton, F. J.: Separation of the Epiphysis of the Olecranon. (*The Boston Medical and Surgical Journal.* Vol. cxlii., No. 26.)

Separation of the epiphysis of the olecranon is classified as one of the rarest of the epiphyseal separations. The writer has not found any case recorded where this separation occurred without other injury.

Two cases are reported. The first was in a naval apprentice of sixteen years who had a fall upon the hand without any blow on the elbow. The elbow was put up in a straight splint. Two months after the accident there was a slight displacement upward and forward for about one-third of an inch. There was no sign of union of the epiphysis to the ulnar shaft, but on flexion there was no apparent tendency of the triceps to cause further separation.

Massage was begun, and after ten days fibrous union could be made out. At the end of six weeks union of the fragment was firm. Flexion was gradually increased, and the motion was painless. The second case was in a boy of eleven years. There was a history of a fall on the hand without direct violence to the elbow. The X-ray photograph taken showed a distinct and typical nucleus of ossification at the site of the epiphysis; the displacement was not notable. The fragment was loose and could be rocked between the fingers. Three months from the date of the accident the epiphysis was slightly displaced forward and was no longer movable.

It would seem that both these cases were separations of the

epiphysis from muscular action alone. The epiphysis may vary in form, and is not always the size mentioned in the books.

As to the clinical importance of these separations of the olecranon epiphysis, it seems noteworthy only that the separation may occur without other injury, apparently from muscular action; that little reaction in the joint results from the injury; that the separated epiphysis does not tend to become widely separated, and that union with the shaft and entire restoration of function are to be aimed at, seemingly with some confidence of success.

Townsend, W. R.: Tendon Transplantation in the Treatment of Deformities of the Hand. (*The Medical News*. Vol. lxxvii., No. 2.)

The operation was first proposed by Nicoladoni, in 1881. After a review of the literature of reported cases the author records 3 cases of tendon transplantation for the correction of paralytic deformities.

The reports of these cases show clearly that we have an operation which will help many patients who have heretofore been told that nothing could be done for their relief. There should be careful and thorough examination as to the condition of the various muscles prior to operation. It should be ascertained whether they react to faradism and whether the reaction of degeneration is present or not. To get good results with restoration of function, it is advisable to suture only tendons that have power left. Of course, the tendon to which they are sutured is usually a paralyzed one, and the method of action is that the non-paralyzed shall do the work of the paralyzed one. There is no reason why muscles should not be made to do work for which they were never intended, and, by certain arrangements, so fastened that their usual line of action shall differ from the normal. Asepsis, of course, is very necessary, and there should be no adhesions to interfere with the movements of the muscles. He prefers to lap the tendon, so that in case of non-union there is still the original tendon left, instead of a wide gap between the divided ends. It is essential that the tendons which are too long should be shortened before the paralyzed tendons are attached to them.

The question of the future action of the muscle, that is, so

far as the cerebral action is concerned, is an interesting one and will be solved undoubtedly by the neurologist or physiologist. The practical point is that, with the flexor tendons attached to the extensors, when the patient wishes to extend the hand, the cases already operated upon show that the proper motion results, although the extension is accomplished by contraction of flexor muscles.

Barker, A. E.: The After-history of 41 Cases Treated by Operation for Destructive Hip-Joint Disease. (*The Lancet*. No. 4004. 1900.)

No case was operated upon before the formation of an abscess in the joint, and all showed grave changes in one or both bones. Fixation of the limb on a double Thomas splint, tonics and cod-liver oil, fresh air and good food constituted the treatment carried out for months or years before operation was resorted to. At the same time it was the rule to operate before sinuses had formed and the cavity had become infected with septic germs. Nevertheless 8 had open sinuses at the time of operation and 8 more are noted as having abscesses about to burst, several of them as "hot" and "pointing." None died before leaving the hospital, as compared with 13.5 per cent. of deaths directly traceable to the operation in the cases reported by Croft twenty years ago. One case died from marasmus eighteen months after the operation. He was a boy of six years who had worn a Thomas splint for twelve months for tuberculous hip. There was a large abscess in front of the joint, and both the head of the femur and the acetabulum were carious. The wound healed in ten days, but then became accidentally infected with urine and broke down. The resulting sinus discharged for seventeen months, and upon dilatation showed that the acetabulum was perforated by a large abscess which discharged into the rectum, and the other hip also contained a tuberculous abscess.

Another child, nine years old, died five years after the operation from recrudescence of the disease and, possibly, tuberculous meningitis. The wound had healed by first intention, and the child walked well for four years, when a sinus appeared; it led down to an abscess, and was scraped, but the girl died shortly afterward.

The only other fatal case was a male, twenty years old,

whose hip trouble dated from the kick of a horse fifteen months before operation. Two very large abscesses formed, and extensive, probably non-tuberculous, disease of the acetabulum and femur was found. He was discharged nearly well, but died one year later of pyemia.

The series of cases extends over twenty-two years, and it has been impossible to trace the after history of 11, of whom 2 were soundly healed when discharged from the hospital. Of the 26 cases followed up for years, fourteen had had no recurrence when last seen, 10 had a recurrence after some years, and 2 after many months. But all the 26 were in good health and walking about when last seen. The functions of the operated limbs were excellent, the patients walking well and without pain, although shortening was present.

The treatment of the recurrent cases consisted in scraping a sinus when open or perhaps applying an ointment; and when a nodule recurred this was excised and the wound closed without drainage, primary union usually resulting.

Had it been possible to operate in all cases before sinuses or "hot" abscesses had formed, the results would have been better. It is interesting that in none of these cases was the operation followed by any of the "accidental wound infections" or by immediate acute tuberculosis as the result of disturbance of local foci. But the cases show that patients once infected by tubercle in a joint remain vulnerable in and about that joint and also liable to the disease in other places, for a long time.

Wharton, H. R.: The Treatment of Fractures of the Femur in Children. (*The Therapeutic Gazette*. Vol. xxiv., No. 5.)

The deformity is usually less marked than in adults, and if present is more easily corrected. The line of the fracture is usually more or less transverse.

Fractures in this class of patients are also often incomplete, certain fibres of the bone giving way, while others are only bent, and there is also in many cases a more or less incomplete rupture of the periosteum, which tends to prevent marked displacement of the fragments. The transverse line of fracture, the incomplete division of the fibres of the bone, the incomplete rupture of the periosteum, and the diminished muscular force, render the deformity less marked than in adults suffering from similar injuries.

There is a great liability of children suffering with rickets to fracture of the femur.

In the dressing preference is given to the use of a splint of binder's board moulded to fit the leg and thigh and extending from the sole of the foot to the ribs.

The results are usually satisfactory. The shortening is usually slight, not more than one-fourth or three-fourths of an inch, and indeed in some cases, especially fractures involving the lower third of the bone, the injured limb by measurement may be found to be slightly longer than the sound one. This may be accounted for, according to Verneuil, by increased growth of the injured bone, due to irritation of the lower epiphysis from the traumatism. Angular deformity is usually not present if the deformity was satisfactorily reduced in the early treatment of the case.

Alexandrow: On the Treatment of Incarcerated Inguinal Hernia in Childhood. (*Die Medicinische Woche.* No. 29. 1900.)

He has had under his observation in the outdoor department of the Olga Children's Hospital at Moscow, 312 cases of inguinal hernia in children—310 in boys and 2 in girls. Six of these cases were incarcerated, the ages of the children being six weeks, one year and nine months, two, three, seven and ten years respectively. During childhood, hernia of acute origin is more apt to become incarcerated by reason of increase of intraabdominal pressure. The cause of the incarceration may be loss of elasticity in the neck of the hernial sac, adhesions between the gut and the sac, or by prolapse of the caput coli with the appendix. The symptoms of incarceration are as follows—tumor in the inguinal region, vomiting, distension of the abdomen, constipation, rising temperature and collapse. In most cases of reduction of incarcerated hernia in children is easy of accomplishment under anesthesia, but recurrences are apt to take place. In cases of large hernia of long duration radical operation becomes necessary.

Alexandrow: Surgical Operations on Infants. (*Die Medicinische Woche.* No. 29. 1900.)

He states that at present even major operations are successfully performed on infants. He denies the truth of the universal opinion regarding special danger in these cases. The greatest danger lies in hemorrhages; the loss of two ounces of blood in

the case of a small child is a grave peril. Hemorrhages of four ounces are fatal for many children. A bloody operation should therefore be postponed, if possible, for several months. In case of great loss of blood during the operation, subcutaneous infusions of salt solution are recommended. Small children stand anesthesia very well, in many respects better than adults. In children under three years of age sudden arrest of respiration, even after a short period of administration of chloroform, is often noticed, and on this account no more chloroform should be administered after anesthesia has been accomplished. Generally, children recover very quickly after anesthesia, and are sometimes ready to take their meals within two hours. The same technique to avoid infection is used in operations on children as with adults. The use of disinfectants should be avoided altogether, if possible, especially that of carbolic acid, as the employment of this remedy in small quantities, even externally, has been followed by symptoms of intoxication. Recovery after operations is as rapid in children as in adults; even towards infected wounds the infantile organism shows wonderful power of resistance.

Fawssett, F., and Jowers, R. F. : Intestinal Obstruction Due to Persistent Meckel's Diverticulum; Successful Laparotomy. (*The Lancet*. No. 4005.)

The illness began suddenly with pain and vomiting after taking a dose of licorice powder. The patient, a girl of eleven years, had previously been healthy. While pain in the abdomen remained, vomiting occurred only after the ingestion of food. As nothing had been passed per rectum, an enema of warm water was given; the last portion returned slightly blood stained. The temperature was below 100° F. and the child did not appear to be seriously ill. Tenderness seemed most marked in the left iliac region. A diagnosis of intestinal obstruction probably due to intussusception having been made, operation was done on the morning of the third day of the illness. Much serous fluid escaped from the peritoneal cavity, and a thin cord, extending from the extremity of Meckel's diverticulum and again attached to the bowel, formed a ring through which some coils of small intestine had slipped and been strangulated. The diverticulum was patent for an inch and a half, and its base was two inches long. As the intestines were greatly distended, the extreme tip of the

diverticulum was cut off with scissors and the gas evacuated. The prolapsed mucous membrane was then sutured and returned, the peritoneum so sutured as to invert and shorten the diverticulum, and the abdominal wound closed; a glass drainage tube was inserted for one day. Recovery was uninterrupted and complete.

Hamilton, Bruce: Impaction of a Bean in the Air Passages; Tracheotomy; Expulsion through the Wound; Recovery. (*British Medical Journal*. No. 2062.)

A boy of twelve years swallowed a bean when playing. The right lung was found to be quite inactive, no air entering it. The left lung acted well. The heart's action was irregular; the apex beat was situated outside the nipple line. On laryngoscopic examination the mucous membrane of the trachea was seen to be swollen and of a dull red color. The voice was thin but there was no actual aphonia. Attempts at dislodgment by a physician and the use of emetics were not successful.

On the following day the condition of the patient became rapidly worse. The cyanosis was marked. Tracheotomy was done and the bean expelled. Recovery uneventful. It might have been possible that the bean could have been seen on the laryngoscopic examination, in which case it might have accelerated permission to operate. The rapid onset of the asphyxia towards the last was due to the swelling of the bean.

Platt, J. E.: Two Cases of Intestinal Obstruction Due to Peritoneal Bands. (*The Medical Chronicle*. Third Series. Vol. iii.)

Of two cases reported one was a boy of five years who had had symptoms of intestinal obstruction for four days and the obstruction was complete for three days before operation. The abdomen was only moderately distended, and palpation revealed a tender swelling below and to the right of the umbilicus. A peritoneal band was found that was attached to the mesentery at the site of an enlarged lymph node. It was stretched over a loop of the ileum. The band was of comparatively recent formation.

As a number of enlarged nodes were noticed it was thought that they were tuberculous. The boy made an uninterrupted recovery.

After quoting Treves' statistics the author states that if the operation is not greatly delayed a peritoneal band will probably be more easily dealt with than any other cause of acute obstruction.

Hobbs, A. T.: **Some Cases of Intestinal Obstruction and Strangulated Hernia and Their Treatment.** (*The Canadian Practitioner and Review.* Vol. xxiv., No. 5.)

Among a number of surgical cases is the following. A baby of seven months had an attack of vomiting with evidences of pain and restlessness. There was a discharge of mucus and blood from the rectum. The temperature was normal and the pulse rather rapid. Rectal examination was negative, the abdomen was soft and no tumor could be seen. On palpation there was found to be a sausage-shaped tumor at the right of the umbilicus.

Operation revealed the tumor to be ten inches of the ileum, with its mesentery, which had traveled through the ileo-cecal valve into the ascending and transverse colon. Slight adhesions had formed. The appendix was three and one-half inches long. The baby did well, although the temperature rose to 103° F. the night after the operation. This class of cases is somewhat rare, being about 8 per cent. according to Treves' classification.

Cathcart, C. W.: **Clinical Lectures; Acute Intestinal Obstruction.** (*The Scottish Medical and Surgical Journal.* Vol. vi., No. 6.)

One of the patients was a boy of eight years who had had constipation and vomiting for three days. Pain in the abdomen was severe, but intermittent. The following day his temperature was 100° F., pulse 112. The abdomen as a whole was distinctly distended. There was a feeling of resistance on the right side in the neighborhood of the ascending colon, but no rigidity nor tenderness of the abdominal wall anywhere. Rectal examination was negative. Since infancy the patient had been subject to attacks of abdominal pain with diarrhea brought on by trifling causes.

On operating numerous caseous lymph nodes were present in the mesentery. To one of these lymph nodes the bowel was tacked down by an adhesion and acutely bent on itself. The intestine was opened after clamping. A great quantity of fecal material was present and it was cleared away after which the bowel was closed with a double layer of Lambert sutures.

For some days there was fever, restlessness and irritability, but he was well and discharged from the hospital one month after the operation.

The obstruction in this case seems to have been due to undigested substances blocking a portion of the small intestine, which had been narrowed by cicatricial contraction and adhesion and sharply bent upon itself.

The conclusion given after a study of this case, and others in adults, is "When in doubt operate."

Martin, A.: On the Treatment of the Umbilicus of the New-Born Infant. (*Berl. Klin. Wochenschr.* No. 8. 1900.)

The following treatment has been introduced by the author at the Greifswald Clinic, and used, so far, on 30 children.

After the first bath a layer of moist antiseptic gauze is wound around the cord. At the junction of the cord with the skin a sterilized silk ligature is tightly bound round it. About half an inch above this the cord is burnt off with a pair of red hot curling irons. There is no hemorrhage; the stump is covered with sterilized gauze and the usual dressing applied. On the fourth or fifth day, rarely the sixth, the cord and the ligature drop off, and there remains a granulating surface about the size of a pin's head. This treatment guards against secondary hemorrhage and infection, and by reason of the common usage of the curling iron can be safely employed even by midwives.

HYGIENE AND THERAPEUTICS.

Hermann: Resaldol—a New Intestinal Tonic and Antiseptic. (*Therap. Monatsh.* No. 4. 1900.)

Resaldol, produced by the action of resorcin on saloform is an amorphous yellow powder, extremely light in weight, and soluble in alkaline solutions. Its therapeutic properties, according to Hermann, are the following: It is non-toxic (doses of 150 grains have been given without producing any symptoms of intoxication); its action takes place in the intestine as it is insoluble in the acid gastric juice; almost tasteless; slightly antiseptic; and can be administered either by mouth or rectum. Hermann employed this remedy in such cases of acute and chronic intestinal diseases where it was desirable to use an astringent and mildly antiseptic agent, as for instance, cases of

diarrhea caused by mechanical irritation, foreign bodies, etc. Those of a purely nervous type are not considered in this class, which includes only cases of irritation due to chemical or infectious agencies, acute gastroenteritis in children, chronic colitis, profuse diarrhea in the first stage of typhoid fever, tuberculosis of the intestines, and intestinal putrefaction with marked indicanuria, (as for instance in chlorotic girls) and in cases in catarrhal jaundice, where the antiseptic action of the bile is wanting. The author recommends large doses of resalдол, from 45 to 75 grains per day as the remedy is innocuous, while the surface over which its action is desired—the intestinal mucous membrane—is extensive.

Kilmer, T. W. : **The Proper Care of the Infant's Nursing Bottle; An Apparatus for the Perfect Sterilization of the Same Combined with a Pasteurizer and Sterilizer for Milk.** (*The New York Medical Journal.* Vol. lxxii., No. 2.)

As soon as a baby has completed a feeding the bottle should be thoroughly cleaned in cold water and scrubbed with a bottle brush. It should then be filled with cold water and allowed to stand in a clean place for several hours. The bottle should be boiled before filling it for a new feeding. To obviate some of the disadvantages of ordinary apparatus for sterilizing and cooling the bottles the author has devised a simple apparatus which is a bottle rack to fit inside of a pail with a cover. The pail has a circular bottle guard which, when in position, prevents the bottles from falling out. The guard is useful when draining the bottles. The apparatus may be used for sterilization and pasteurization.

Simpson, F. C. : **Acute Articular Rheumatism in Children.** (*The American Practitioner and News.* Vol. xxix., No. 59.)

In an article on the above subject, he states that he does not question that the disease is generated in the digestive system. He believes the salicylate compounds are the principal remedies in the treatment, although they exert little influence in shortening the duration of the disease. They should be used sparingly, however, as they are apt to produce depression in children. The oil of wintergreen is effective in some cases, but is objectionable because it upsets the stomach.

The alkaline treatment should be used following the use of

the salicylates. It lessens the pain and fever, and never upsets the stomach. Rest in bed is the only safeguard against endocarditis, and it must be remembered that the salicylates do not protect from heart complications. Opium is useful in small doses where there is endocarditis, and pepto-mangan is advised as one of the best tonics in anemia.

Hatfield, M. P.: Scarlatina; Its Nature, Causes and Treatment. (*The Medical Standard.* Vol. xxiii., No. 3.)

The treatment of scarlet fever should be largely expectant, but not neglectful of threatening complications. In the foudroyant cases treatment is useless, for the child is dead before a diagnosis is made or assistance possible. Fortunately, these cases are rare. The most efficient treatment is that which best adds to the comfort of the child and anticipates possible complications. The mildest attack requires no treatment at all except rest in bed for a week and some antiseptic gargle, used often enough to keep the throat clean and comfortable.

The mildest cases are those in which the kidneys need the closest watching, since the largest toxin elimination takes place through them where the eruption is light. The lightest cases should be most carefully watched, confined to the house for four weeks, and an examination of the urine made at least once a week or as much oftener as the case demands. It should be remembered that a single negative examination does not exclude the possibility of limited nephritis, which will give evidence of its existence a few hours later, after errors in diet or exposure to cold. Jaccoud claims that an exclusive milk diet for four weeks is an absolute safeguard against post-scarlatinal nephritis, but such regimen, especially in mild cases where it is most needed, is very difficult with the average American child.

In the writer's experience kumyss, custards, broths, blanc mange, jellies, baked apples and fresh fruits may be safely added to a milk diet; but meat should be absolutely tabooed so long as there is any evidence of renal irritation. Whatever diet may be chosen by the attending physician, he should not forget to insist upon the copious drinking of water during convalescence.

Infusions add much to the comfort of the child and should be practised from the first appearance of the eruption.

Chloral hydrate is praised for its effect in relieving the nervous tension and restlessness of the first stage of eruption.

A tardy eruption should be encouraged with hot drinks, warm baths and with stimulants where there is collapse.

The choice of a local antiseptic for the throat is less important than its frequent uses. Peroxid of hydrogen diluted with equal parts of lime-water just before using is very efficient. Adenitis should be treated by irrigation of the pharynx and nose. The local treatment of the lymph nodes is apt to be overdone.

Nephritis as the most frequent complication should be carefully watched for. Rest in bed and a liquid diet are the best methods of minimizing the danger. The preparations of potash are the best diuretics when there is evidence of scanty urine. Diuretin in doses of 2 to 5 gr. should be used when dropsical symptoms increase. If pilocarpin is employed it should be used with an alcoholic stimulant. Ascites can be treated by elaterin. The heart does better with strophanthus or spartein than with digitalis, and the stomach is not irritated.

A purulent discharge should never be neglected or the child considered well until it has entirely ceased. Quarantine should be maintained for five weeks, and one month is the shortest time that is safe. The last desquamation should take place from the fingers and toes.

Morden, M. R. : Malt Coffee (or Malt Infusion) as an Infant Food. (*The American Therapist*. Vol. viii., No. 9.)

After a trial of malt infusion some of the conclusions are:

1. Malt coffee well merits a high standing as an infant food.
2. It will succeed in many cases when all preparations of milk, pure or with digestives, have failed.
3. It will sometimes succeed best as a pure strong infusion, and in other cases will do better when diluted 10 to 25 per cent. with milk.
4. Give the milk preparations first trial and malt coffee next before resorting to so-called infant foods.
5. In a great number of cases where the child did not do well on milk, it soon revived and grew strong from the use of the malt coffee.

He advises pure, good, sound malt from a reliable brewery, carefully roasted and put away in fruit cans. Use three or four tablespoonfuls to each pint of hot water, steep twenty to thirty minutes. The nutrients of malt infusion consist of maltose, dextrin, diastase, and other albumenoids, with a small amount of the barley salts.

Viand, L.: The Methods of Guarding Children Against Tuberculosis. (*La Tuberc. Inf.* Vol. iii., No. 4.)

It is strongly recommended that special schools should be instituted for such healthy children as are exposed to tuberculous infection in their homes. These schools are to be situated in the country, where the children can live under conditions free from the constant danger of infection. For the children who have acquired tuberculosis, and are, in consequence, a menace to the members of their families as well as to their school companions, sanatoria should be erected.

Douglas, C.: Some Observations on the Sterilization of Milk in Infant Feeding. (*The Glasgow Medical Journal.* Vol. liii., No. 6.)

After mentioning the fact that a child who is fed on raw milk runs a constant risk, particularly of tuberculous infection, the author asks the question, "Why not boil all milk intended for infant consumption, and so render it sterile?" Milk that is boiled loses some nutritive value. The palatability is lessened. The most serious objection is that such milk has undergone marked depreciation with reference to its antiscorbutic properties. As to the exact nature of the element in the fresh milk which causes it to be antiscorbutic, we do not know.

Pasteurization is satisfactory in many ways as the bacillus of tubercle and that of typhoid are destroyed at a temperature of 158° to 167° F. if subjected to the heat for twenty minutes. There is no change in the palatability of the milk nor in its digestibility or antiscorbutic properties.

Soxhlet's apparatus is regarded as the best. The milk should be cooled rapidly so that the bacillus lactis will not develop.

Milk for older children may be pasteurized in bulk after the milk has been through a centrifuge.

Marsden, R. W.: Immunity to Diphtheritic Infection, and Reinfection After the Use of Antitoxin. (*The Medical Chronicle.* Third Series. Vol. iii.)

Four cases are reported in which it was found necessary to repeat the injection of antitoxin. In one case this was done after twenty-two days, in another after twenty days and in the other

cases after two weeks. It seemed probable that the return of the laryngeal stridor was due to the reformation of the diphtheritic membrane as the symptoms were quickly relieved by the second injection of the antitoxin which would not have been the case had there been paralysis, cicatrization after ulceration or polyposis.

The second attack was practically a recapitulation of the first and was of exactly the same type. It is possible that reinfection might have taken place from other patients in the hospital ward. It is often found that cases that do not show clinical symptoms after diphtheria will give cultures of diphtheria bacilli so that reinfection is liable to occur.

A consideration of the different doses of antitoxin that are administered warrants the conclusion that the period of immunity is not proportionate to the dose.

The practical importance is that during convalescence from an attack of diphtheria, the reinjection of antitoxin must be immediately performed upon the supervention of "croupiness" or signs of early laryngeal stridor.

Dickinson, E. T. : Acute Enterocolitis Treatment. (*South-ern Medical Journal.* Vol. iii., No. 5.)

This is a condition secondary to gastrointestinal infection. If the early diarrhea and gastric disturbances are not relieved it is apt to follow them. Lavage should be carried out at once and then followed by a dose of castor oil. The rectum and colon should be irrigated with large quantities of warm water. These three measures are regarded as essential prophylactic steps.

When there is enterocolitis the feeding is most important. Milk is generally to be avoided. Albumen water, beef juice and chicken broth are advised. The rectum and colon should be irrigated three or four times a day with hot water to relieve pain and tenesmus. Cold water may be used if fever is excessive. The water should contain a dram of borax to the pint, or common salt. Resorcin and bismuth subnitrate are considered efficient intestinal antiseptics. Pain and tenesmus may be relieved by small doses of morphin and atropin. Suppositories containing cocain, one-half a grain to a grain may be used for extreme tenesmus.

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COUGH IN INFLUENZA SIMULATING WHOOPING-COUGH.*

(PSEUDO PERTUSSIS, PERTUSSOID).

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The first difficulty arrived at is to find a proper name for the combination of symptoms which forms the basis of this paper. Great care must be taken in introducing new names, both on account of the fact that the nomenclature of disease is overburdened, and also because a new name more or less necessarily means a new disease. For this reason, principally, I have refused accepting the term, pseudo pertussis, introduced by the Italians, and pertussoid, used here and there in German literature, although both or either describe the clinical condition thoroughly well. Beyond the first objection urged to new names, none can be applied to the name pseudo pertussis. The name pertussoid is a barbarism, combining as it evidently does a Latin name with a Greek ending, and if for no other reason should be discarded.

The paper is confined to the combination of symptoms to be described, in connection with influenza, although these symptoms, more or less developed, are found in other conditions besides influenza and whooping-cough proper. It may be well, before going further, to state what I mean by influenza. In looking through the literature on this subject I find that various authors mean various things. There can be no doubt of the fact that the diagnosis, influenza, has been grossly abused since 1890. I have seen the most remarkable things attributed to influenza. On the other hand, there is a tendency to reduce the diagnosis of influenza to limits that are not justifiable.

* Read by title before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

Von Jaksch insists upon making the diagnosis of influenza only when the influenza bacillus of Pfeiffer is found. Leichtenstern makes the statement that the absolute diagnosis of influenza can only be made when this bacillus is present, but afterwards modifies his statement by saying that the diagnosis can rest upon the finding of the influenza bacillus, unless at some future time it may be shown that some other bacillus produces influenza as well. At the same time, however, he is willing to admit that the diagnosis of influenza can be made upon clinical evidences. We owe to him possibly the differentiation between influenza vera and influenza nostras, the difference between the two being represented by the difference between Asiatic cholera and cholera nostras, influenza vera always being produced by the bacillus of Pfeiffer. I do not hesitate to say that the diagnosis of influenza cannot be limited to the finding of the bacillus of Pfeiffer, and that for several reasons. In the first place, this bacillus had not been unconditionally accepted as the cause of influenza. The requisites of Koch have not been fulfilled. Secondly, in a disease that occurs as a pandemic, it would be manifestly impossible in order to make the diagnosis to examine every case for the influenza bacillus. Lastly, it has been recently shown by Hueppe, that in the last few epidemics of influenza it has been almost impossible to find the influenza bacillus after the first few days of the disease. All these cases then, if we depended solely upon the finding of the bacillus for our diagnosis would have to be rejected as not being influenza. I prefer to base the diagnosis for the present upon clinical evidences, and in this respect am more inclined to agree with Filatow, who claims that besides the ordinary symptoms, influenza vera in children is characterized, first, by the fact that it is pandemic, secondly, that it is not confined to place nor restricted by season, and thirdly, that it attacks all human beings, young and old alike. To this there may be added several other things; that clinically it is confined to certain types, which can be well grouped under three headings, the gastrointestinal, the respiratory and the nervous, to which might be added possibly a fourth, the hemorrhagic type; that one attack does not produce immunity but on the contrary a predisposition, and that influenza is characterized by certain sequelæ and complications which are not found in connection with the ordinary grippe or influenza nostras. For the cases that form the basis of this paper these

requisites have been fulfilled. While I hunted assiduously and carefully for the presence of the influenza bacillus, it must be confessed that with the exception of three or four cases the influenza bacillus was not found, in all of them, however, streptococcus. The bacteriological examinations were made after all precautions required for the examination of the influenza bacillus had been taken. I have also borne in mind the fact that Doernberger states that in 45 per cent. of healthy children streptococci were found in the mouth. It is true that 14 out of his 40 children had carious teeth. Possibly this may account to some extent for the difference in his statement and those of Netter, 5.54 per cent. and Kurth, 4.5 to 8 per cent. For this reason as well as to make the determination an accurate one, material for examination was always taken from *within* the expectorated material. As far as the bacteriology then of this condition is concerned, the evidence of disease being the result of true influenza is absent. In every case that was examined we found streptococci. It was impossible to make a positive diagnosis of the kind of streptococcus present. Animal experiment upon white mice showed that they were not pathogenic. But if the criticisms of Von Jaksch were to be applied, he having reported cases similar in some respects to the cases that we will have to deal with, these cases must be ascribed to the streptococcus infection and not to influenza. Notwithstanding this, on account of the definition that I have given of influenza, I do not hesitate to state that these cases were true cases of influenza vera.

The symptoms in these cases at first were very puzzling and the differential diagnosis between true whooping-cough and influenza whooping-cough in the beginning, and I might add throughout the observation of this peculiar form of trouble, was very difficult in individual cases. In the first place, note must be made of the fact that this complication is not a new one, having been described as far back as 1510 by Short; and in the next place, it must be remembered that the French name *coqueluche*, before Baillou described whooping-cough in 1578, was the name that was given to influenza in France, and then applied to whooping-cough. In 1892, the Italian, Guidi, described pseudo pertussis. He was followed by Pestalozza and Musatti in 1893, who in the main agreed with the statements made by Guidi. Filatow, 1892, describes a condition like the one we are discussing, but does not bring it under the head of

a disease, very similar to whooping-cough. In the discussion on influenza at the Hot Springs Meeting of the American Pediatric Association, 1895, Holt and Blackader mentioned a cough simulating whooping-cough, and Leichtenstern, in his excellent monograph on influenza, 1899, makes mention of the act of the existence of whooping-cough-like cough.

The peculiarities of this cough are as follows: It always moved in epidemics; it was decidedly contagious. If it broke out in a family, few or none of the family were spared, irrespective of age. The servants who came in contact with the patients were attacked, and in three instances I have seen patients attacked who had previously had whooping-cough, to which a further reference will be made. The onset was that of an ordinary attack of influenza. In children there was fever and principally the form of the respiratory or gastrointestinal type of influenza. These symptoms would pass over possibly in two to four days, and then would begin a cough. If the type had been originally the respiratory form, the cough would immediately develop into the characteristic cough, which shall be described below. If the original attack had been in the form of the gastrointestinal type, all the symptoms would have disappeared and then the peculiar cough would develop. This cough is characterized by the following: It usually first develops at night, but not so distinctively as in whooping-cough, as the attacks would appear during the day time as well. The cough is that of whooping-cough except that the peculiar whoop is not so characteristic as in pertussis; however, sufficiently so to be recognized as a whoop, and in some instances as well marked as we find it at any time in whooping-cough. The cough is accompanied by the ordinary congestive symptoms of whooping-cough, is followed by vomiting and expectoration, in every respect like whooping-cough. The mouth in some respects differs from whooping-cough in that the peculiar blue color of the mucous membrane and of the tongue are absent. This is to be ascribed to the fact that the attacks of coughing are more numerous but not so long in duration as those of whooping-cough. As to the ulcer of the frenulum, my observation has shown that it not only is present, but if anything better marked than in whooping-cough. And in this respect as well as in some others, I differ from Pestalozza and Musatti, who have not seen this ulcer in what they call pseudo pertussis. Not only was the ulcer well developed, but on

account of the frequency of the attacks in a large percentage of the cases there were additional ulcers on the tongue, due to the protrusion of the tongue against the lateral incisors.

In this form of trouble as well as in whooping-cough implication of the bronchial tree varies with the individuals and the epidemic. I have had occasion to study this form of trouble in four epidemics and in each one complications on the part of the bronchial tree varied. Upon the whole, I think that I am justified in coming to the conclusion that in those cases in which the original attack of influenza was respiratory, the chances of a bronchitis or pneumonia developing were greater than in those cases in which the original attack was confined to the gastrointestinal tract. The duration of the trouble varies very much, depending largely upon individual attack, but also upon the treatment. If left to itself the disease lasts as long as six to eight weeks, and longer, but in the majority of instances it can be aborted so as to last not longer than from a week to ten days. Pestalozza refers to the fact that children who have once had whooping-cough may have similar attacks for years afterward, and seems to offer this as an explanation for the appearance of this cough. I have been singularly fortunate in being able to observe a family of children who had never had whooping-cough, but who became affected with this whooping-cough-like cough, and after they had recovered were infected with true whooping-cough, which was brought to them by a visitor from another part of the country.

The only explanation that seems plausible to me is the one that in order to produce symptoms of whooping-cough there must be a certain anatomical location of the cause, and this cause need not of necessity be the specific cause of whooping-cough, whatever that may be, but any one localizing itself in or upon a certain part of the respiratory apparatus.

The complications and sequelæ are largely those of whooping-cough. Some, however, must be ascribed to influenza. In another place, Jacobi's *Festschrift*, I have described the complications on the part of the heart. In four cases I saw develop typical influenza pneumonia. In a large number of cases there was present croup; in one case subglottic croup, which required intubation and tracheotomy; in several cases in adults symptoms of edema of the glottis. In three cases there was developed meningitis, and in five so-called cryptogenetic septicemia, the origin of the septicemia being a streptococcus bronchitis.

As has been stated, the differential diagnosis was difficult at times, but in the majority of cases it could be made when the principal points of difference between this form of disease and whooping-cough were borne in mind, the epidemic appearance of this form of trouble, associated with a general epidemic of influenza; the fact that the disease attacked adults as well as children, former attacks of whooping-cough not protecting against this form of trouble. As far as I myself am concerned, my observation is in accord with Vogel-Biedert, Eichhorst and Henoch, who have never seen a second attack of whooping-cough in the same individual, Theodor, on the other hand, having seen it fifteen times in 353 cases. Then comes the peculiar relation of the cough to the original attack of influenza, the influenza following its usual course, whatever that may be, in the individual case, followed thereafter by this peculiar cough, the peculiarity of the cough again being that while it increases in severity, unless there be a catarrhal cough present, within twenty-four to thirty-six hours of the onset it is fully developed as a whooping-cough-like attack.

Having made reference to treatment as a factor in the duration of the disease, brief mention of the method that I have employed may not be amiss. In the presence of a house epidemic of this form of trouble, or even when this form of trouble is epidemic I have found that *full* doses of quinia materially reduce the duration of the disease. But the dose must be sufficiently large, not less than one decigram less than the age in years and one centigram less than the age in months. The quinia cuts the disease short, only when it is given in full doses and given early; it has been my rule to give these large doses of quinia as soon as I suspect the development of this peculiar cough. When the cough has developed thoroughly, phenacetin or antipyrin gives great relief, but has very little effect upon the duration of the cough. In very bad cases codein must be given in full doses and sometimes it becomes necessary to give chloral at night in order to insure sleep. In most cases belladonna is a disappointment, but in some, especially when the cough has persisted for some time, its effects are very gratifying. When symptoms of septicemia have developed, and mild symptoms are not infrequent, unguentum Credé or even the injection of streptococcus serum has proved of great benefit in my experience.

EPIDEMIC PARALYSIS IN CHILDREN. *

BY HENRY DWIGHT CHAPIN, M.D.,

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The occurrence of epidemics of paralysis in children has been reported in recent years by a number of observers. They have generally been considered as cases of anterior poliomyelitis, and have naturally provoked renewed discussion as to the essential cause of this disease. The prevailing idea among recent writers appears to be that the spinal paralysis of children is an infectious disease, and occasional epidemics confirm this view. Thus, Church and Peterson (1899) state that its infectious nature is indicated by the abrupt onset, the usual febrile movement, the gastric disturbance, the occasional occurrence of convulsions, and most of all by epidemic and endemic outbreaks. Such have been recorded by Colmer, Cordier, Medin, Leegard, Oxholm, Nonne, Calverly, Altman and others. The authors find in some of these outbreaks that a considerable variation from the type has been noticed, and some cases presented the symptom complex of Landry's paralysis, the infectious nature of which is known. It must be borne in mind, however, that while the microbic origin of poliomyelitis, may, by analogy, be assumed, it has not been scientifically demonstrated. Gowers' recent volume (1899) in discussing this subject states that we must remember the vascular activity that all function entails, and the readiness with which the vasomotor system of children is disturbed. The occurrence of the disease in more than one member of the same family indicates a congenital disposition of the system to react in a similar manner to certain external agencies, while a special feature in the latter may perhaps explain the occasional epidemic character of the disease, and furnish grounds for ascribing to it an infective character. The evidence available suggests that it is probably due to some chemical change in the blood analogous to that which seems to cause rheumatic fever, though probably distinct from it—a change excited by cold, disposed to by the effect of heat,

* Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

the result of some derangement of metabolism which we cannot yet understand, and perhaps having underlying these effects some organismal cause. Doubtless there is more than one possible cause for poliomyelitis, sometimes of an infectious nature, sometimes due to refrigeration and again to a possible traumatism. Dr. Sachs relates the cases of two children in the same family being attacked with spinal paralysis and within two weeks of one another. Careful inquiry showed that the disease in both cases came on shortly after a very cold surf bath. It is fair to suppose, however, that in epidemics there is an infectious element present. This is further predicated by the fact that in these epidemics the paralysis may not be exclusively spinal, as other parts may be affected by the supposed microbe. Dr. W. Pasteur (Clinical Society's Transactions, Vol. xxx., 1897) reports an epidemic of infantile paralysis occurring in the seven children of one family. Three were followed by permanent paralysis, two had a primary fever without paralysis, one had a primary fever followed by general tremors lasting a few days, and one had primary fever followed by partial tremors lasting a few days and strabismus of short duration. He concludes that there was a unity of cause in this group of cases and thinks they furnish a conclusive proof that a poison which in one case gives rise to a typical anterior poliomyelitis can determine in others lesions in other parts of the nervous system. It is highly probable that these phenomena will be seen in all epidemics of paralysis in children. An interesting epidemic occurred during the summer of 1899 at Poughkeepsie, N. Y., most of the cases being attacked between the middle of July and the middle of August. Seven of the cases were seen by me in consultation with Dr. D. M. Sheedy. The peculiarity of this epidemic appeared to be the existence of severe pain in the parts affected by the paralysis.

The following case is fairly typical:

George C., aged four years. Never been sick. Illness started with vomiting, high fever and pain in the limbs. First seen on July 20th with temperature 104° F., and pulse 120. He complained of severe pain in back and limbs. July 21st, temperature 102° F., pulse 100. There was quite an arch in his back, giving an appearance of tetanus. On the fourth day after the onset his temperature was normal, the pain had pretty well subsided and he had lost control of his limbs. An examination in the follow-

ing February showed that he was able to stand up by a chair and walk around it. There was also considerable wasting of his legs. The cases examined by me with Dr. Sheedy showed absolute paralysis of the limbs affected, with loss of reflexes, and apparently considerable pain on handling the part. There was such marked evidence of the action of some infectious principle that I suggested a blood examination, and accordingly specimens were sent to Dr. H. T. Brooks, who returned the following report: "Microscopic examination of the three blood slides sent to me by Dr. D. M. Sheedy, of Poughkeepsie, at your suggestion, failed to give any positive results. The specimens did show occasional minute microorganisms (a diplococcus) to which, however, I cannot attach any etiological significance, because of the small number of specimens and also because the latter may have been contaminated from the skin or other source. It was also noted that the so-called hematoblasts of Hayem or blood plaques of Bizzozero were somewhat increased above the normal, which finding, according to recent researches, is said to be indicative of dissolution of red elements, the number of plaques being in direct proportion to the degree of dissolution. As such a condition could also be present in any state attended by reduction of the red elements by dissolution or fragmentation (if recent views are correct), I would hesitate to attribute any great significance to this phenomenon. I believe that reliable data can be secured in the cases under observation only by a large series of complete blood examinations, and by histological and bacteriological examination of the body tissues and fluids other than blood." During this epidemic the general health of Poughkeepsie was unusually good, according to Dr. Sheedy, and there did not seem to be evidence of malarial infection in the locality. The prominent feature of pain in these cases, and its more or less persistence in the affected limbs, brought up the question of neuritis. One of the cases proving fatal, an autopsy was made, and the nature of the disease in this particular instance proven.

John S., aged two years, died in convulsions twenty-four hours after he was taken sick. Dr. Brooks removed the cord for examination and made the following report: "The microscopic examination of the cord structures did not show anything more than has already been well described in many standard works on pathology, *e.g.*, Ziegler's '*Lehrbuch der*

Speciellen Pathologischen Anatomie'; Orth, Langerhan, Israel, etc., namely, hemorrhage, affection of the ganglion cells of the anterior horns, characterized by cloudy swelling, shrinking and swelling, granular and hyaline degeneration, vacuolation and disintegration. In those specimens stained for bacteria, however, there was observed a diplococcus morphologically resembling the microorganism referred to by me in my former report to you in reference to the blood specimens. These cocci were found in the degenerated area, *i.e.*, in the anterior horn region, but not in the peripheral or meningeal portion of the cord. This appeared to me to be of striking interest; still I would hesitate to draw any etiological conclusion therefrom, because of the possible sources of error which may at any time arise during the course of such examinations, and which cannot always be avoided. However, considering the clinical histories of such cases, the acute character of the disease, the epidemic form in which it sometimes manifests itself, and the localization of the pathological changes, the results are, to say the least, quite suggestive."

In reports received from Dr. Sheedy during February and March, he tells me that the great majority of the cases observed by him made a complete recovery in from one to four months. Three cases, however, had paralysis and atrophy, with the typical after appearance of poliomyelitis. A little girl of seven years, whom I saw in the acute stage, with pain and paralysis of the lower extremities, was examined by me in April, when I failed to find any loss of power in the parts previously affected. It is certainly very rare to find complete recovery after an attack of acute anterior poliomyelitis. I never remember to have seen such a case. In this epidemic, the prominence of pain with the paralysis, followed by complete recovery in many of the cases, leads me to consider these as attacks of peripheral neuritis. With the data at hand, I believe we can conclude that this epidemic was of an infectious nature, that in some cases the infective principle attacked the anterior horns of the spinal cord, in others, the peripheral nerves, and that possibly, in a few cases, both parts were attacked.

DISCUSSION.

DR. CHAPIN.—I have never seen a marked case of poliomyelitis permanently and entirely recover. But a large percentage of the children in this epidemic have completely recovered, and from that, I believe we can state that the disease was limited to the periphery. Other epidemics have been noted. Dr. G. M. Hammond tells me they had one at Bridgeport some years ago, in which the paralysis was in some cases spinal and in some cases peripheral. I believe at times the disease is limited to the cord, in some to the peripheral nerves, and possibly in a third it will be found in both.

DR. ADAMS.—Was any lumbar puncture made?

DR. CHAPIN.—No.

DR. GRIFFITH.—It was my privilege a year ago to see an instance of the occurrence of poliomyelitis in two members of one family, two children being taken ill within a few days of each other, without any cause that we could discover. This has tended to strengthen my belief that the disease is an infectious one.

It might be of interest to state that those of you who may look up the published report of the epidemic of neuritis to which Dr. Chapin has referred, will find there the account of one very typical case of infantile scurvy with its pseudo-paralysis.

DR. CHAPIN.—I will simply guarantee that none of these cases was scurvy.

DR. GRIFFITH.—I did not mean to infer that any of Dr. Chapin's cases were instances of scurvy, as I am sure he would not make this mistake in diagnosis.

Thrombosis as the Result of Tumor Growth.—Rosenstein reports (*Archiv f. Klin. Chirurg.* B. lx., H. 3) an interesting case of myxosarcoma which had penetrated into several of the large veins. Patient was a child of six years. Operation for abdominal tumor was undertaken, but a total extirpation because of the size of the growth and the poor condition of the child was impossible. The child died eight months after the operation. At the autopsy a myxosarcoma of the left kidney was found; also a thrombosis of the left renal vein, and of the inferior vena cava, and of the right auricle of the heart; the thrombosis being due to an ingrowth of the tumor. There was also present a purulent meningitis.—*The Philadelphia Medical Journal*, March 24, 1900.

MALARIAL COMA IN CHILDREN.*

BY GEO. N. ACKER, M.D.,

Washington, D. C.

During the past year I have had under observation two cases of coma connected with malarial fever, which I thought were caused by the malarial parasite.

On looking up the literature on the subject I was surprised to find how little had been written about it. It is true that in pernicious malarial fevers the congestive and comatose varieties have been described—in some cases preceded by convulsions.

Dr. H. B. Anderson in the *Peoria Medical Monthly*, December, 1883, gives the history of three cases of "Malarial Fever in Children With Meningeal and Cerebral Complications." When these cases are analyzed two are found to be due to abscess of the middle ear, and there is some doubt as to whether malaria was the real factor in the causation of the symptoms as no examination of the blood was made.

Since the systematic study of the blood in every case of fever in hospitals is now made by competent men, and the different stages of the malarial organism is so well known, cases which were formerly treated under some other name are now being classified correctly. Thus we find that malaria is responsible for many conditions such as congestion of the lungs and kidneys which were not attributed to it.

It is remarkable that malaria in children does not cause more disturbance of the nervous system than is usually the case, for with the unstable condition that is found in poorly nourished children one would expect the cerebrospinal system to be chiefly affected resulting in paroxysms characterized by delirium, convulsions, coma and tetanic spasms producing serious disturbance of the function of animal life.

CASE I.—I. C., aged eleven years, male, colored, was sent to the Children's Hospital, August 31, 1899, by the Health Department with the history that the child had been unconscious for three days. No other history could be obtained.

* Read by title before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

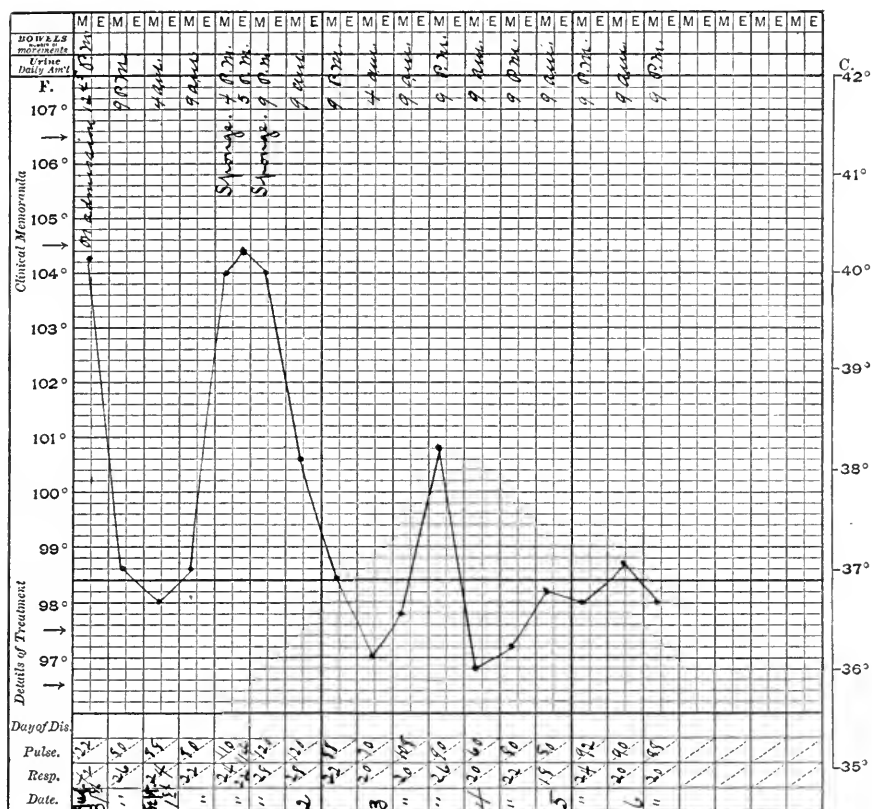


CHART I.—CASE OF ISAAC CARTER, 11 YEARS OLD.
Admitted August 31, 1899.

PRESENT CONDITION.—The child is in a comatose condition, with tonic spasms, and cannot be aroused, lies on back with forearms flexed on arms and the legs cannot be extended when the thighs are at right angles to the body. The eyes are staring and the mouth is tightly closed. Pulse 122 and respirations 42 per minute. Lumbar puncture was done at 4.30 P. M. and though no fluid came away, yet in an hour the patient began to speak and take nourishment and at the same time the muscular spasms relaxed.

September 1st.—Slept well during the night and appeared rational. During the day slept a great deal, and passed a large quantity of urine which on examination was found normal. An

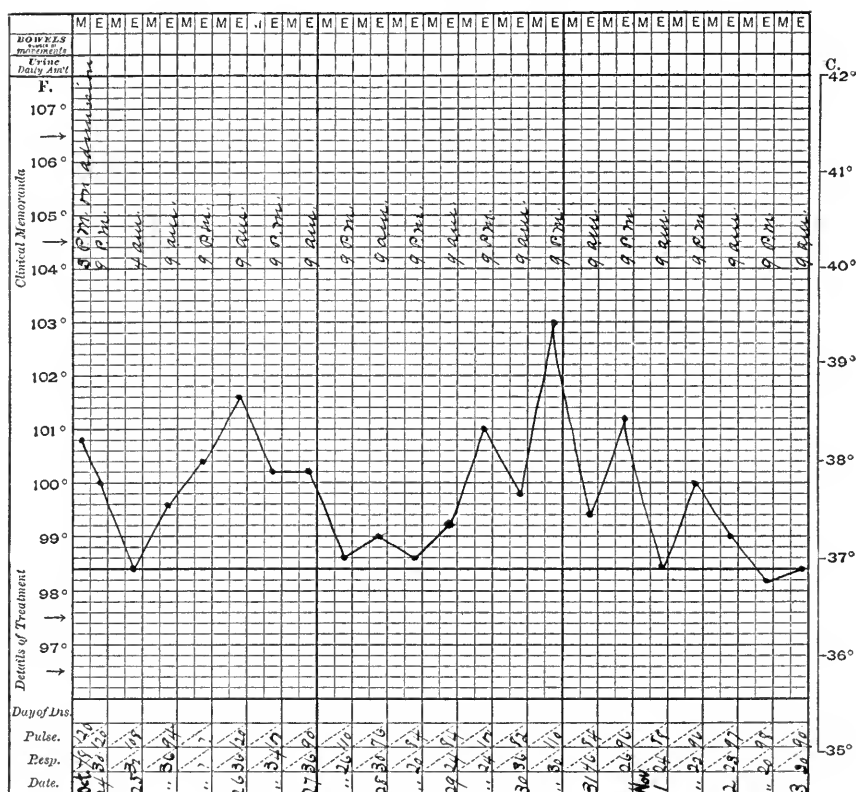


CHART II.—CASE OF B. R., 8 YEARS OLD.

Admitted October 24, 1899.

examination of the blood showed a large number of the estivo autumnal organism. Five grains of the muriate of quinin was ordered every three hours. The temperature rose to 104.5° to-day.

September 2d.—Slept quietly during the night. He had a chill between 12 and 1 P. M. The limbs were rigid, eyes set and he appeared in a state of coma for two hours. Perspired freely at 4 P. M.

September 3d.—Has a good appetite and seems much improved. The patient had a slight rise in temperature to-day followed by a profuse perspiration.

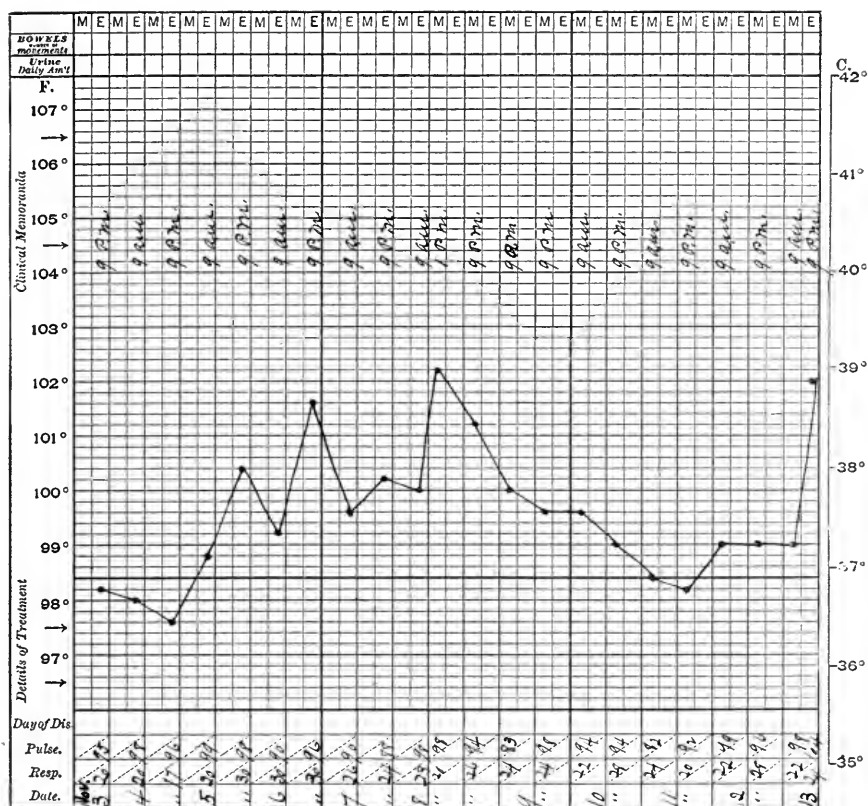


CHART III.—CASE OF B. R. (Continued)

September 5th.—He had some slight rigidity to-day. The urine has been examined several times with negative results.

Small doses of quinin muriate and Fowler's solution were continued for some time and he was discharged cured October 3d. (Chart I.)

CASE II.—B. R., female, colored, aged eight years, was admitted to my service at the Children's Hospital, October 24, 1899.

FAMILY HISTORY.—Father (white) living and in good health. Mother died three years ago with pneumonia. No other children. No syphilitic or tubercular history obtainable.

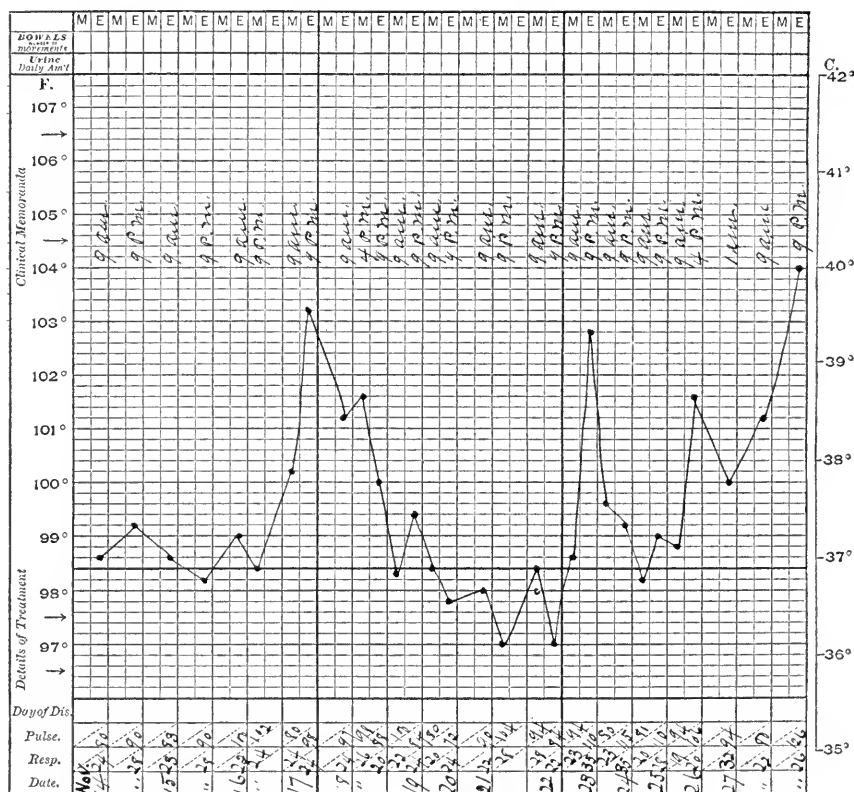


CHART IV.—CASE OF B. R. (Continued.)

PREVIOUS HISTORY.—Labor was long and tedious and the child was born asphyxiated. She was fed at first on condensed milk three teaspoonsful to the pint and half of water and about the end of the first year was put on cow's milk. Began dentition under one year of age and progressed normally. When one year of age had cholera infantum. Present illness began three weeks ago with coughing spells and high fever coming on at night. This was followed by swelling under the eyes and of the extremities, accompanied by great shortness of breath, especially at night. The fever has continued and she has been restless at night. She had two severe convulsions just before being admitted to the hospital.

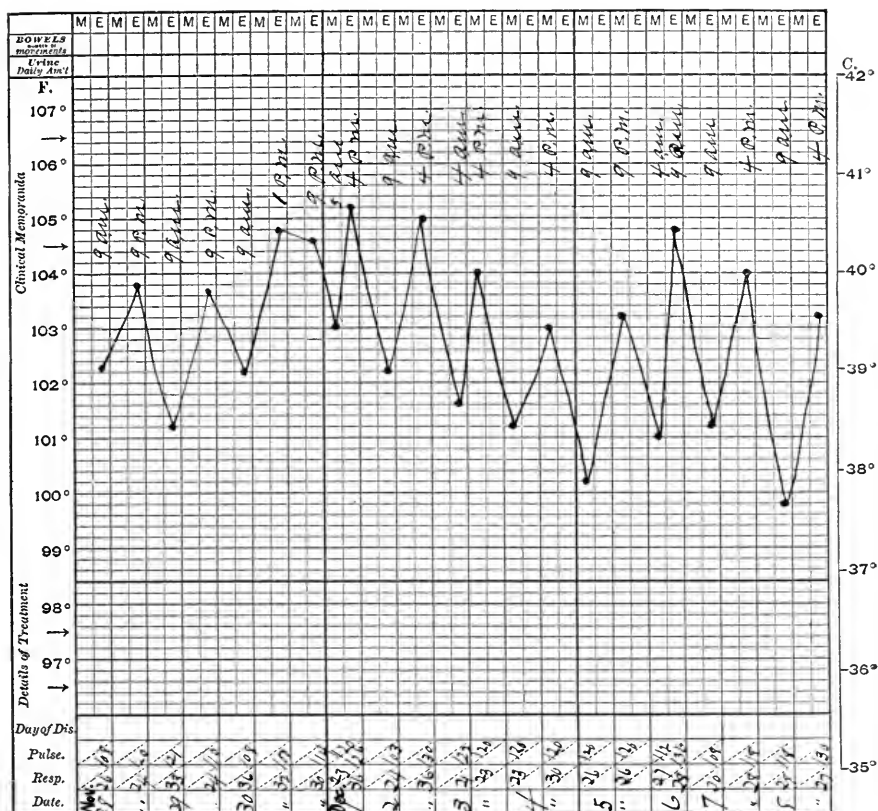


CHART V.—CASE OF B. R. (Continued.)

PRESENT CONDITION.—The child is well nourished. Lies on back as if exhausted. The skin is light in color and without eruption. There is some swelling of the feet. The cervical lymph nodes on the left side of the neck are slightly enlarged.

The respirations are 42 per minute, deep, and without pain. She has a slight cough. There is some rough breathing over both lungs but no râles. The pulse is 92 per minute, regular and weak when first admitted, but became slower and stronger in a few hours.

The appetite is poor and bowels are regular. The tongue is heavily coated and breath offensive. The liver and spleen are normal. The child has pains over the eyes and in abdomen.

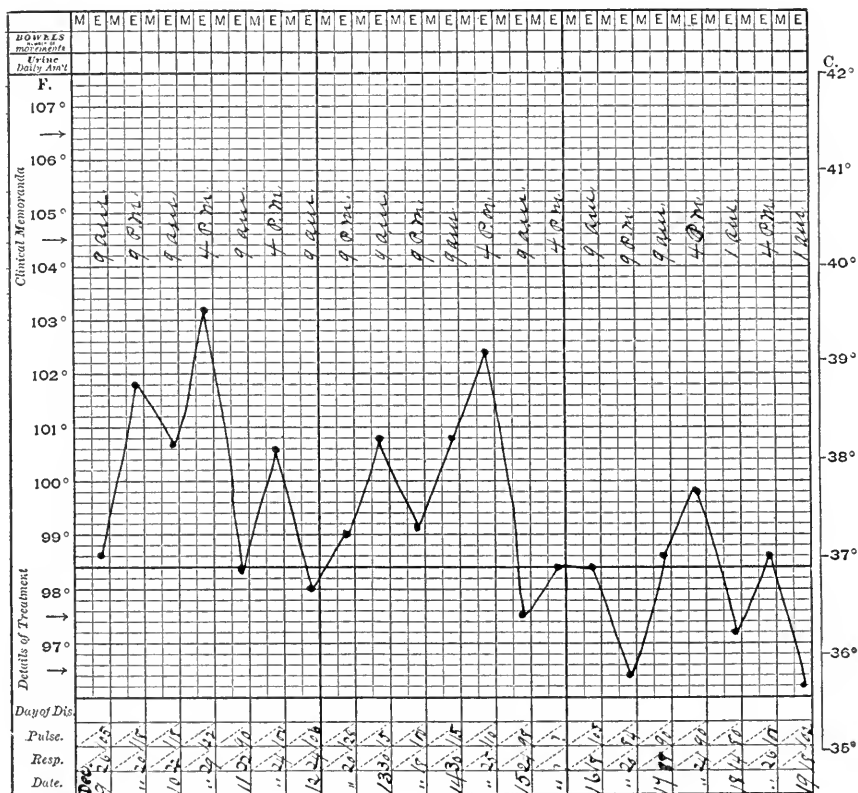


CHART VI.—CASE OF B. R. (Continued.)

It was necessary to catheterize her twice during the day. The urine was of a pale straw color with heavy sediment. Reaction acid, specific gravity 1020, urea eight grains to the ounce, albumin 4 per cent. Few epithelial, granular and hyaline casts with few blood corpuscles and many leucocytes.

October 25th.—Slept and took nourishment well during the night. Swelling about the feet less and child brighter. Temperature was normal at 4 P.M. About 7 P.M. she had severe convulsions, clonic in character, lasting about ten minutes. The skin was hot and dry; she was placed in a steam tent and given twenty grains of bromid of soda and ten grains of chloral hydrate by the rectum. This attack left her nauseated. She

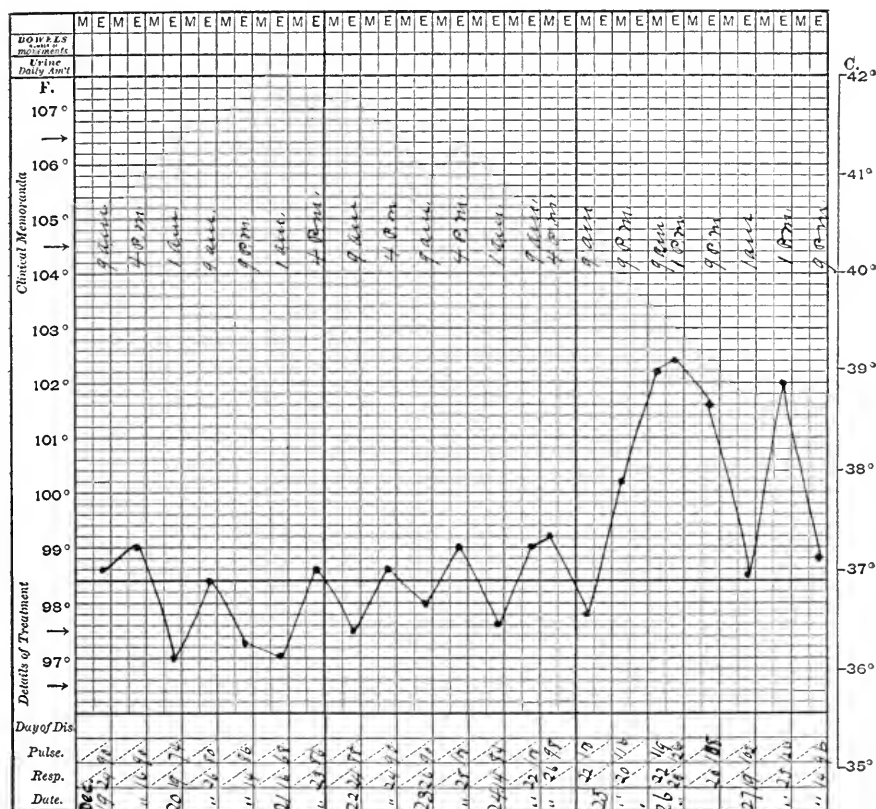


CHART VII.—CASE OF B. R. (Continued.)

had slight convulsions at 9 P.M., and at 10.15 P.M. another very severe one occurred which lasted fifteen minutes. The convulsions appeared to affect all the muscles. She voided thirty-one ounces of urine during the day.

October 26th.—She was unconscious all night. Became conscious at 8 A.M., but at 9.15 A.M. was restless with muscular twitchings followed by hard convulsions lasting ten minutes. She remained in an unconscious condition until 1.15 P.M. when she had a convulsion of half an hour's duration. Inhalations of chloroform kept her quiet all the afternoon. The hot applications were continued, but the skin did not act until a hypodermic of pilocarpin was given when she perspired freely. There were two loose stools from elaterium. She passed urine invol-

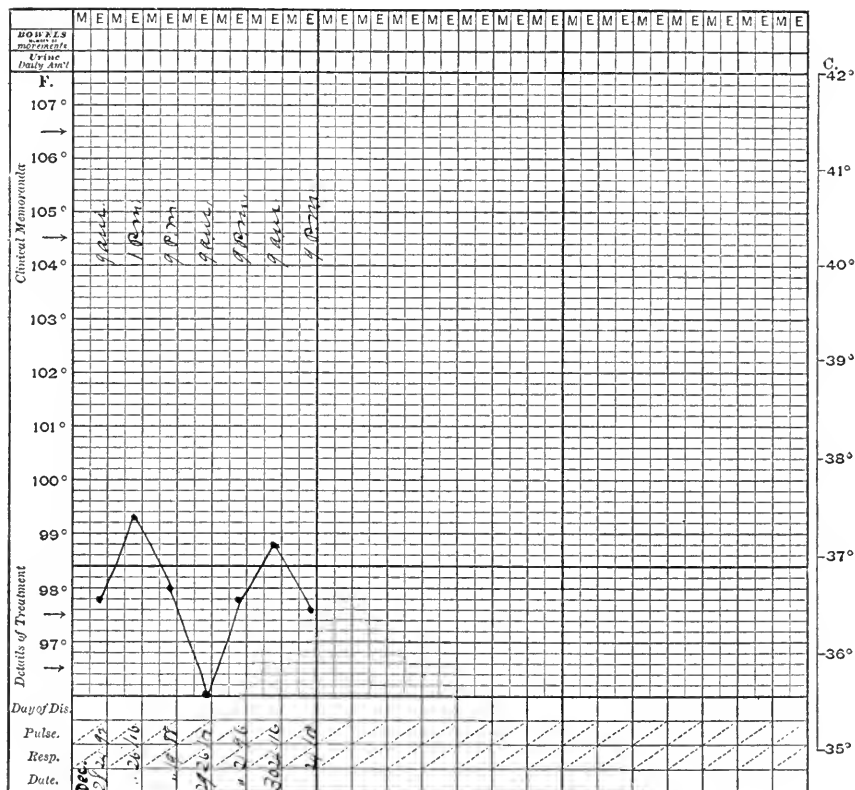


CHART VIII.—CASE OF B. R. (Continued.)

untarily so that the amount could not be ascertained. Albumin 3 per cent., no casts, few blood corpuscles with some leucocytes. On the examination of the blood numerous estivo autumnal organisms were present.

October 27th.—Slept quietly the greater part of the night. Took nourishment well and asked frequently for water. Large stool from enema. Pulse slow and regular. Is dull, but appears conscious. Was nervous at times during the day. Quinin muriate grs. 5 and strychnin sulph. grs. 1-120 were given every three hours. About twenty-seven ounces of urine passed in twenty-four hours which on examination showed 3 per cent. of albumin, few blood corpuscles and some leucocytes. Seven grains of urea to the ounce.

October 30th.—Rested well the last three nights. The girl is brighter. She has had several large stools daily from compound jalap powder. There has been about twenty-five ounces of urine voided daily. The analysis to-day was as follows: Amber color, acid reaction, specific gravity 1015, eight grains of urea to ounce, $\frac{1}{2}$ per cent. of albumin; few red blood corpuscles and many leucocytes.

November 5th.—General condition good. About the same quantity and character of urine with a mere trace of albumin.

November 10th.—The child had been in a good state. The urine has increased in quantity. There is only a trace of albumin with few leucocytes. Methylene blue was given to-day in place of quinin.

November 11th.—Had a slight convulsion to-day lasting five minutes. (Charts II.-III.)

November 14th.—The patient remains about the same. Passes thirty-five ounces of urine of a blue color. Analysis about the same

November 17th.—The child's temperature took a sudden rise to 103.2° F. and she complained of pain in the epigastrium. Since the 15th inst. she had 3 grains of muriate of quinin every three hours, and though the methylene blue was stopped then there is a trace of it in the urine.

November 23d.—The child had chilly feelings followed by rise of temperature to 102.8° F. and complained of pain in the epigastrium. The urine is normal.

November 27th.—The pains in abdomen have continued and have been marked on the right side.

As the chart shows the temperature increased and ran a remittent course until December 15th when it became subnormal. On the 25th it took a sharp rise with rapid pulse and respiration and slight headache. After running an intermittent course for a few days it became normal. She improved rapidly and was discharged cured January 15, 1900. This attack was proved to be typhoid fever by the number of rose spots which appeared December 5th and a positive Widal reaction. There was some albumin in the urine from the 7th to the 9th of December. (Charts IV.-VIII.)

Without doubt in the first case the coma was caused by the influence of the malarial parasite upon the nervous system. An interesting feature in this case is the effect the lumbar puncture

had upon the comatose state. In regard to the second case there is some question on account of the nephritis which complicated it—as to whether the convulsions and coma were directly produced by the malarial organism. It will be remembered that the active stage of the nephritis had occurred before she was admitted to the hospital and after that time the urine improved in quantity and quality. It is reasonable to take the view that both the kidney disease and nervous disturbances were caused by the malarial parasite.

913 SIXTEENTH STREET.

Notes of 22 Cases of Juvenile General Paralysis, with 16 Post-mortem Examinations.—Mott (*Archives of Neurology*) reports a case of general paralysis in a lad of sixteen was published by Clouston in 1897, and there are now on record some 89 cases in early life. Mott's cases ranged, at the age of onset, from eight to twenty-three years, and the sexes are about equally represented. They were all derived from the middle, or lower middle, classes. Hereditary syphilis played a preponderating rôle in the etiology of these cases; in not a single instance could it be positively excluded; there was clear evidence of infection in 60 per cent. of cases, as shown by scars, teeth, etc.; and in 20 per cent. more, of a maternal history of this disease. The duration of the disease was rather longer in the female, and longer in the cases which commenced early. In individuals attacked about the age of twenty or over, the disease ran an acute course. Progressive mental dementia was a constant feature, mania was present in three cases, whilst delusions of grandeur were much rarer than in adults. Progressive paresis was present in every case, with one exception. Paresis and contracture of the legs occurred in quite half of the cases. Tremor of the face muscles, tremulous tongue and slurred speech, together with affection of the handwriting were present in all cases examined. The pupils were irregular, or they reacted sluggishly or not at all to light. In all the above symptoms it will be observed that the disease corresponds with the adult form, the most marked differences being the less severe character of convulsions when they occur, and in diminished frequency of delusions of grandeur. Pathologically the changes found were similar to those in the adult. Atrophy of the brain, thickening of the pia-arachnoid membranes, and dilatation of the ventricles and granular ependyma were found in all cases examined.—*The Montreal Medical Journal*. Vol xxix., No. 3.

THE QUANTITY OF DIPHTHERIA ANTITOXIN REQUIRED IN THE TREATMENT OF DIPHTHERIA.*

BY WM. H. PARK, M.D.,

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We will be helped to rightly determine the dosage of diphtheria antitoxin if we at the start clearly understand the nature of its action. It can be closely compared in its effect on toxin to that of an acid neutralizing a strong alkali. If we have swallowed a quantity of strong soda solution, we cannot hope to have the acid do more than counteract the alkali still present and so stop its further injurious action. The damage already done to the tissue cells is irreparable. In diphtheria we want to give enough antitoxin to neutralize all the toxin present and to be produced at the seat of inflammation and also whatever may have been absorbed. The tissue changes already produced we cannot hope to remove, neither can we hope to neutralize the poisons of the other bacteria which are so often associated with the diphtheria bacilli in diphtheria. In fact, for the poisons of the pneumococci, streptococci, etc., we have as yet no bacterial remedies.

We measure antitoxin in units of effect, each unit representing that amount of antitoxin which is required to neutralize sufficient toxin to kill 100 small guinea pigs. This amount of poison is produced by the growth for one week of a very virulent bacillus in 1 c. c. of bouillon. The dosage of antitoxin has varied somewhat from year to year. On the whole, as our knowledge of its comparative harmlessness has grown most physicians have increased the amount given.

Many good observers now recommend about the following quantities: Cases light to moderate and seen very early, 1000 to 1500 units; more severe cases in young children with swollen lymph nodes, necrotic tissue, or stenosis, 2000 units. Older children, 3000 units. These amounts to be repeated in twelve to twenty-four hours, if there is no local improvement.

* Read before the Section on Pediatrics, New York Academy of Medicine, October 11, 1900.

At the other extreme are those who give in the milder cases some 4000 to 8000 units, and in the most severe 40,000 to 60,000 units. McCollom has used these very large doses at the Boston City Hospital for more than a year, and has had good results—better, he believes, than with the smaller doses. The rashes and joint affections have been somewhat more numerous but not at any time dangerous.

We have now, therefore, among the great majority of physicians, who have treated diphtheria both with and without antitoxin, a strong conviction that cases seen early receive great benefit from 1000 to 3000 units of antitoxin. There is, however, a decided difference of opinion as to whether any better effects can be noted from still larger quantities. At the Willard Parker Hospital we have frequently varied the size of the dose; and, while, with few exceptions, we have never given to any case of clinical diphtheria less than 1000 units, we have at other times made the minimum dose 2000 units. The maximum dose for a single case has varied from 1000 units to 20,000 units. In June of this year we began to give the alternate cases larger doses than their fellows, and during the months of August and September, 1900, at the Willard Parker Hospital, one-half the cases of diphtheria received 1000 units and the other half 2000 units. The whole amount was given in one dose on admission. The cases were taken alternately, the dosage being not at all influenced by the severity of the disease or the age of the cases. The study of this series of cases was very interesting and as the others will speak mostly of much larger doses I will confine myself chiefly to cases receiving such comparatively small amounts.

Ninety-three cases of diphtheria received into the wards during these two months have been discharged or have died up to to-day, October 11th. Of these 14 died=15 per cent. 42 received 1000 units; died 7=16.6 per cent. (7 intubations; 4 recovered; 2 laryngeal, not requiring intubation; 2 recovered); 15 received 2000 units; died 7=13.7 per cent. (6 intubations; 4 recovered; 4 laryngeal, not requiring intubation; 4 recovered).

Lest these figures suggest too much in favor of the larger amount of antitoxin, it is only fair to state that during the months of June and July, when, as a rule, the cases alternated between 1000 units and 2000 or more, the mortality was 4 per cent. higher in those receiving the larger doses.

So far as the simple mortality figures indicate, therefore, we can only say that no marked difference was noted between the 1000 unit series and those receiving 2000 units.

If we look at the fatal cases individually we find that in the 7 cases receiving 1000 units there were 2 in which the outcome was not as good as we confidently expect in cases treated with sufficient antitoxin.

Thus, No. 1, admitted August 30th, was ten years old, had thick membrane on tonsils and uvula, and had lymph nodes of neck considerably swollen; patient sick two days; prognosis given on admission as good; local improvement was very slow, and patient died on the twelfth day of lesions due to diphtheria toxin.

No. 2, admitted September 1st; man, aged twenty-six; tonsils and uvula covered; two days sick; prognosis good; throat very slow in healing, taking nine days to clear; died of heart failure on the tenth day when getting out of bed to go to the closet. In the other 5 fatal cases there is less reason to believe that a larger dose would have materially influenced the outcome of the disease, although in 2 of the 5 it might have done so.

These 5 cases were briefly as follows:

1. Eight months old; died on the twentieth day from intestinal disturbance.
2. Child six years old; already ill sixteen days and paralyzed.
3. Child three and a half years; sick four days; tonsils, uvula, pharynx and larynx affected; received in dying condition.
4. Intubation case; two years old; already ill seven days; died on twenty-first day.
5. Intubation case; one and a half years old; died of complicating bronchopneumonia fourth day.

Of the 7 receiving 2000 units which died, 4 seemed to be hopeless on admission and 1 was a septic eye case. These cases were the following:

1. Child eighteen months old; sick six days; tonsils and uvula covered with membrane, complicating bronchopneumonia; died on fourth day.
2. Child three and a half years; tonsils, uvula, fauces and pharynx covered with membrane; dying when admitted; lived but eight hours.

3. Child eighteen months; marasmus; dead in forty-eight hours.

4. Child eight years old; tonsils, pharynx and larynx involved. Temperature, 104° F.; pulse, 132; respiration, 40, on admission. Sick six days; died second day.

5. Child two and a quarter years old, admitted for marked inflammation of the eyes thought to be diphtheritic. Child was in poor general condition and did badly, dying on tenth day.

The two remaining cases did not do as well as might have been hoped from the data given on admission.

6. Child aged ten; sick four days. Tonsils, uvula and a portion of pharynx covered by membrane. Did fairly well at first, then developed a high temperature and a general erythema and died on the sixth day.

7. A child of three years with tonsils, uvula and pharynx covered, and some laryngeal stenosis. The duration of illness was doubtful. The prognosis was put down as good. Laryngeal stenosis increased and the child died forty-eight hours after admission.

If we now look at the rashes which developed we find in the 42 1000 unit cases 10, and in the 51 2000 unit cases 12. In no case did joint or severe constitutional disturbances develop. The severity of the rashes and their type were about the same.

In summing up the results of the study of these 93 cases, I should say that the local condition in the moderately and markedly severe cases did not clear up as rapidly with 1000 as with 2000 units, and in 2 or 3 cases I believe death would have possibly been avoided by larger doses. I believe also that in several of the 2000 units cases better results would have been obtained by larger doses of from 3000 to 5000.

So far as the frequency of the complications and their severity they did not differ appreciably in the two series. Very large and repeated doses of antitoxin do, in my opinion, increase somewhat the liability to the serum complications, but from my own observation and from the observations of Dr. McCollom, I think it correct to say that the increase in the serum effects from very large doses is much less than most believe.

At the hospital we have tried two other experiments which are worth recording here. In the first we gave every alternate case from 2000 to 6000 units, according to the severity of the

disease. The other half received just double that amount. I think none of us saw any difference in the outcome of the two series of cases. In the second experiment in order to test a new remedy no antitoxin was given to one-half of the cases for six weeks. The results were so bad in a considerable number of those not receiving antitoxin that they were all put back on the antitoxin treatment. From these experiments and from my observation of other cases in both hospital and private practice, I have been led to adopt the following dosage:

Very mild cases,	1000 to 1500 units for the first dose.
Moderately severe cases,	2000 to 3000 " " " "
Very severe cases,	4000 to 5000 " " " "
Laryngeal cases, according to their severity,	2000 to 5000 units.

For children under one year I should give about one-third less than for older children and adults. I believe the condition of the throat as to swelling, extent and nature of the membrane, etc., to be a better guide to antitoxin dosage than the general condition of the patient. The duration of the disease influences the curative power of the antitoxin rather than the dosage.

If at the end of twelve hours after the injection the inflammation is advancing, or if at the end of eighteen hours the inflammation has not clearly begun to subside as shown by lessened congestion and swelling, I believe a second dose of antitoxin should be injected. In a very few cases a third dose is required at the end of twenty-four to thirty-six hours. For the bronchopneumonia and sepsis complicating some of the worst cases antitoxin is generally of no avail. Although I cannot agree with Dr. McCollom in regard to the necessity of from 40,000 to 60,000 units in the very bad cases, nevertheless, his results certainly encourage us to give all the antitoxin that we think indicated. It is better to give too much rather than too little. I think I am correct in saying that it is the opinion of the visiting physicians at the hospital that moderate doses accomplish as good results as very large ones.

In conclusion I wish to express my thanks to Drs. Bryant and Barker, the resident and assistant resident physicians to the hospital.

THE POSSIBILITY OF ELIMINATING THE DELETERIOUS WHILE RETAINING THE ANTITOXIC EFFECTS OF ANTITOXIC SERA.*

BY WM. H. PARK, M.D.,

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College; Assistant Director, Research Laboratory, Department of Health,
New York.

While we believe that in the treatment of diphtheria and tetanus the beneficial effects of antitoxic sera far outweigh the deleterious effects, still all of us would gladly avoid, if possible, the eruptions, the changes in the blood and the constitutional disturbances which occasionally follow the serum injections.

These disturbances, occurring mostly in children and in about 15 per cent. of the cases injected, are as a rule, simply intensely disagreeable for the day or two during which they persist. Occasionally, however, they are of more importance as when, for instance, they occur in a child having severe laryngeal diphtheria accompanied by bronchitis or bronchopneumonia, or in one in poor general condition. In these cases the primary beneficial effects of the antitoxin are largely neutralized by the deleterious effects of the serum. The scarlatinal type of rash is also sometimes very puzzling in a diagnostic way.

In pursuing the investigation of purifying antitoxins it is necessary to learn all that we can of their chemical nature. We find that recent investigations have connected antitoxins and globulins so closely that, as we shall see, we may consider it a probability that the antitoxins are globulins or globulin-like substances.

Experiments have apparently demonstrated that whatever precipitates all the globulins from an antitoxic serum, precipitates also the antitoxins. This must mean either that antitoxins are precipitated by the same substances as globulins, or that they are without exception completely carried down mechanically by the globulin precipitates.

Certain experiments carried out in the Health Department Laboratories by Atkinson† make the mechanical explanation of

* From Research Laboratory, Department of Health.

† *Journal of Experimental Medicine*, November, 1900.

the bringing down of the antitoxin hard to believe. Thus he found that when a solution of globulin, precipitated by magnesium sulphate from a normal or an antitoxic serum, was saturated with sodium chlorid and gradually warmed to 72° C., there occurred five different precipitates, and in antitoxic sera these precipitates were in each case antitoxic. The filtrate always remained antitoxic so long as any globulin remained in solution, but no longer, so that when the temperature had been raised to 72° C. the last trace of antitoxin as well as globulin had been precipitated.

Now to have with the rise of temperature, one after another, five absolutely distinct globulin precipitates formed in the saturated sodium chlorid solution and to have each of these carry with it only a portion of the antitoxin, and yet when the fifth and last globulin precipitate had formed to leave absolutely no trace of antitoxin behind in the solution, seems to me difficult to explain on any other supposition than that along with the normal serum globulins there were also antitoxic globulins.

The work of Atkinson just alluded to suggested to me an experiment, the outcome of which renders the mechanical theory of the separation of the antitoxin still more improbable. As before, the solution of the precipitate, obtained from antitoxic serum by saturating with magnesium sulphate, was saturated with sodium chlorid and heated, but only to 55° C., so that only that portion of the antitoxin and globulin which is precipitated at the lower temperature was thrown out. One-half of the filtrate containing still about 30 per cent. of the antitoxin and of the globulins was mixed with the entire globulins from a similar quantity of normal serum from an untreated horse. The mixture of the normal and antitoxin globulins saturated with sodium chlorid was warmed to 55°, but now, in spite of a heavy precipitate, only a trace of antitoxin came down, no more than was obtained from the half kept for a control which was heated to the same temperature, but to which no normal unheated antitoxin had been added. The normal globulin, therefore, of the serum which was not antitoxic, failed to carry down the antitoxin from the mixture when precipitated at the lower temperatures. If we conceive the globulins in diphtheric antitoxin sera to be a mixture of non-antitoxic globulins and antitoxic globulins the results of the above experiments would be intelligible. Both globulins would

be affected alike by the magnesium sulphate. Such globulins salts being formed that, when put in the saturated sodium chlorid solution and warmed, the five precipitates above described would occur. Each would be antitoxic because in each precipitate would be some non-antitoxic and some antitoxic globulin. It is not meant to affirm that the five separate precipitates indicate five separate globulins, for Atkinson has found that the amount of each precipitate varies somewhat according to the amount of magnesium sulphate present in the solution at the time of heating.

Still another hint of the globulin character of antitoxin is in the remarkable relation which has been found to exist between the globulin amount and the antitoxin amount in the different bleedings during the immunization of the horse to diphtheria toxin. Horse numbered 137, when first obtained, contained 3.2 per cent. globulin and 3 units of antitoxin in each c.c. It is of some interest to note that this is the largest amount of normal antitoxin ever noted by us in any untreated horse. Three months later, after repeated injections of toxin, the globulin, as tested by Mr. Atkinson, was 8.2 per cent. and the antitoxin 1200 units per c.c. Three weeks later, toxin injections having in the meantime been omitted, the globulin was 5.9 per cent. and the antitoxin 650 units per c.c. Still ten days later the globulin was 4.7 and the antitoxin 400 units.

During all this time there was no increase in albumin, but a decrease of from 20 to 10 per cent. during the increase of the globulin. This increase and decrease of globulin we have found in all horses to be roughly in proportion to the increase and decrease in antitoxin, and this without any relation to the amount of toxin injected. Figures for many of our horses are given by Hiss and Atkinson in the *Journal of Experimental Medicine*, November, 1900.

We have then these facts for diphtheria antitoxin. It is present in considerable amounts in the blood of some untreated horses and in large amounts in the blood of immunized horses. The antitoxin in both of these kinds of sera is thrown down with the globulins and this is apparently a true precipitation and not a mechanical separation. A considerable increase of antitoxin always includes an increase in the total globulins. Diphtheria antitoxin appears, therefore, to be either a globulin or a substance having many of its characteristics.

If this be true, we cannot hope to get a pure antitoxin, but only a mixture of antitoxin with the normal serum globulin as well as any other substances which are present in the blood and are precipitated by the chemicals which precipitate globulins.

With this idea in view I asked Mr. Atkinson to saturate a liter of antitoxic serum, which had unusual rash-producing properties, with magnesium sulphate, and then after removing all the magnesium sulphate possible by pressing the precipitate between filter papers, to replace the magnesium in the precipitate with sodium. This mixture of globulins and antitoxin and about 10 per cent. of sodium sulphate was then used in 36 cases of diphtheria, with the hope, but hardly the expectation, that in excluding the albumin and the other substances not thrown down by the magnesium sulphate, we might have gotten rid of at least a portion of the deleterious substances of the serum. In all 48 cases of diphtheria were treated, one-half at their homes and one-half in the hospital.

TABLE I.

SUMMARY CASES TREATED BY THE DEPARTMENT OF HEALTH INSPECTORS WITH
ANTITOXIC GLOBULIN.

Inspector.	Cases.	Local Rashes.	General Rashes.	No Rash Perceptible.
Dr. Benedict.....	4	2	1	1
Dr. Wootton.....	6	0	0	6
Dr. Somerset.....	7	0	1	6
Dr. Pollitzer.....	5	0	0	5
Dr. Hubbard.....	1	0	1	0
Dr. Lynde.....	1	0	0	1
Dr. Lynde, Immunized....	11	0	0	11
Totals, Diphtheria.....	24	2	3	19
Immunization.....	11	0	0	11

Recovered, 23. Died, 1.

The different inspectors sent me the following summaries of their results:

DR. BENEDICT writes:

Marked induration follows its use which I have never before observed. This induration is painful and occasions discomfort and enforced prostrate position in bed when the buttock is used, a site of injection which has always been my point of injection.

In Case No. 3, the only serious one in the series, there seems to have been from the globulin just as favorable action as a curative as found in the plain serum. This case was septic and the nose was plugged, but recovery, which was slow, was uneventful and began in forty-eight hours after the injection.

From my experience with this globulin serum, I should not be inclined to use it in outside practice, preferring for the reasons above the ordinary serum.

DR. WOOTTON writes on his 7 cases:

Rashes occurring in but one case and this had previously been injected with another serum. As a matter of fact, however, with the exception of a few blotches around the point of injection, rashes were very rare with the serum I had previously used. On the other hand, the swellings at the point of injection seemed to be much more persistent when globulin was used. It is thinner and consequently easier to inject than the other. As to the mortality, the cases seem to me to be too few to draw any conclusions.

DR. SOMERSET writes on his 7 cases:

All of the cases recovered. Three of the cases showed irritation at site of injection, resulting in abscess in one of them. One case showed a rash. Of the three cases having local irritations, two were ill-fed and in a miserable physical condition. The results, as regards the lesion and general progress of the case, do not seem to differ materially from those obtained with the regular variety of antitoxin.

Of the 24 cases of diphtheria injected at their homes, most of which were not severe, there was but one death, and that occurred in a baby fifteen months old in which the diagnosis of diphtheria is in doubt as no diphtheria bacilli were found in the cultures.

CASES TREATED AT THE WILLARD PARKER HOSPITAL.

Twelve cases were treated with antitoxic globulin, and twelve others, the cases being taken alternately, were treated with serum of the same bleeding as that from which the globulin was derived. No rashes appeared in the adults treated with the globulin or with the serum. In the children receiving globulin a little less than 50 per cent. developed scarlatinal rashes, the same was true for the serum cases. As there is a difference of opinion as to whether some of these rashes were due to antitoxin or scarlet fever, I will not give the details of the cases here. I watched them carefully and am of the opinion that the globulin cases did as well as those treated by the serum, but no better. In a small proportion of cases the globulin with its sodium sulphate caused local pain and swelling in this respect being less desirable than the serum.

We are, I think, safe in concluding from the clinical observation of the cases treated and from animal experiments, that while the globulin class of substances contains all of the curative bodies of the blood, it also contains to a large extent at least the properties which, in susceptible persons, cause certain changes which are manifested by skin eruptions, usually without, but sometimes with fever and other constitutional disturbances. The hope that in separating the globulins and allied substances from the blood we might obtain the protective substances while leaving those that are sometimes harmful, must probably, at least for the present, be given up. We must turn, therefore, to the consideration of other possible methods for eliminating the deleterious properties of the serum.

Several different methods have been advocated to accomplish this: namely filtration, heating to 58° C., preservation for a considerable period and selection and treatment of animals used for antitoxin production. Filtration through fairly coarse stone filters, such as the Berkefeld, while removing bacteria and any floating particles has not in my experience, succeeded in removing those substances which produce the serum effects. It seems to me, therefore, to be a probability that any filter that allows antitoxins to pass will allow the deleterious substances to pass also.

The heating of serum to 58° C., for twenty minutes has been advocated by Spronck. Used by him in a large number

of cases such serum gave far less of the "serum effects" than the unheated serum. In a limited experience our results have been the same from both the heated and the unheated serum.

A number of observers have thought that the rashes, etc., were less from serum kept for some months than from that freshly drawn. We can certainly affirm that in our experience serum kept for from six months to one year has appeared to be less irritating than when freshly drawn. The difference, however, was not great enough to make us certain that the better results from the kept serum were not accidental. It certainly seems safe to assert, however, that old serum is as good as freshly drawn serum of equal strength in antitoxin. We do not need, therefore, to use freshly drawn serum but rather serum recently tested for antitoxin strength.

Chemical methods, heat and filtration failing up to the present at least to enable us to retain the antitoxic while lessening or eliminating the deleterious substances, can we, through selection of animals, manner of feeding and treatment, improve our present methods of procuring a dispensing antitoxin?

All who have watched the use of antitoxic serum in diphtheria and tetanus obtained from different sources have felt convinced that serums differ in their liability to produce disturbances in those injected. Thus, some time ago, during a whole month at the Willard Parker Hospital there were only two rashes of a mild urticarial type in 65 consecutive cases, while another serum produced a rash in 20 of the 30 persons injected.

Such a difference must be attributed to the nature of the serum employed and not to the varying susceptibility of the individuals injected. Not only does the serum from different horses vary but also different bleedings of the same horse.

CONCLUSIONS.

Antitoxins are, in all probability, substances having the properties of globulins. They cannot with our present knowledge be separated from that portion of the blood serum which in susceptible persons produces disagreeable effects, the fact, however, that the antitoxic serum from some horses is scarcely at all deleterious, leads us not to give up the attempt of procuring a serum either by selection of animals or by the treatment of serum itself which while antitoxic is not to any important

degree deleterious. For routine practice at present we can scarcely do better than to follow the general plan of using the serum from all healthy animals which have remained healthy during their period of immunization and which have in their blood a sufficient concentration of antitoxin. This should not be less than 200 units in each c.c.

A plan which with the co-operation of Dr. H. M. Biggs, the Director of the Laboratories, and the Health Commissioners, I am trying to put in effect may possibly prove to be practical, although it has many difficulties to contend with and can probably only be carried out by Departments of Health. Each bleeding from a horse gives about 3000 c.c. of serum, which in the usual strength of 300 to 400 units per c.c. suffices for about 200 patients. The serum from as many bleedings as possible will be used first in 10 mild cases which are under the direct supervision of Departments of Health. The serum from any bleeding that gives marked eruptions will be thrown away. The serum from some of the bleedings which seem to be of the very best character will be kept for the most serious cases among those treated at the hospital or by the Department at their homes. The remainder of the very good and fairly good serum will be sent out in the usual way. This is a very small outcome from the work toward bettering antitoxin which we have carried on for some time in the laboratories of the New York Health Department; perhaps in the future others or we ourselves may succeed better.

Finally I wish to express my thanks to Mr. J. P. Atkinson, the assistant chemist, for his help in obtaining the globulin for the treatment of the cases here described.

315 WEST SEVENTY-SIXTH STREET.

“Growing Pains” as a Symptom of Rheumatism.—Dr. E. M. Brockbank, in the *British Medical Journal*, calls attention to the fact that “growing pains” are often, if not always, of rheumatic origin, and any inquiry into the cause of a diseased heart (especially of mitral stenosis) should include investigation as to the previous occurrence of such pains. He reports 5 cases of mitral stenosis in which no history of rheumatism could be elicited except of “growing pains,” which are the most common symptoms of rheumatism in children.—*The New York Medical Journal*. Vol. lxxi., No. 20.

Clinical Memoranda.

A CASE OF RACHITIS WITH ENLARGED SPLEEN.

BY WILLIAM H. JESSUP, M.D.,

Buffalo, N. Y.

The history of this case is of particular interest because of the great enlargement of the spleen in a rachitic baby who was breast-fed.

S. V., aged seven months, was born in Buffalo of Italian parents. The history, as best it could be obtained, was as follows: The father and mother are well and strong. Two older brothers of the baby are in good health. The baby was born after a normal labor, and has had the breast since birth, but without regard to regular hours of nursing. About one month before admission to the hospital the baby lost in weight and was ill, but the nature of the attack could not be ascertained. The physician who saw the case said that the baby had leukemia, and sent a note to that effect. Three days before admission the baby began to have a severe diarrhea with frequent green stools.

Examination showed the baby emaciated, with all the bony points very prominent. Head flat, no craniotables, fontanelles wide open; rachitic rosary; enlarged epiphyses of long bones; lymph nodes in groin, axilla and post-cervical region enlarged; lungs and heart normal; spleen very large, filling nearly one-half of the abdominal cavity, extending to right as far as umbilicus and downward into pelvic cavity, but without much displacement of viscera upward (Fig. 1.). Liver slightly enlarged. Weight of the baby, 8 pounds 15 ounces. Temperature, 99.6° F.; pulse and respiration not counted, as the baby was restless.

Blood counts were made with the following results:

July 20th.—Reds, 1,270,000; whites, 10,700; hemoglobin, 23 per cent.; eosinophiles, $\frac{1}{2}$ per cent.; large lymphocytes, 12 per cent.; small lymphocytes, 43 per cent.; polymorpho-lymphocytes, 45 per cent.

August 2d.—Reds, 1,420,000; whites, 15,000; hemoglobin, 30 per cent.

August 20th.—Reds, 2,450,000; whites, 10,000; hemoglobin, 42 per cent.

About one week after admission to the hospital the temperature went up to 102° F., but a dose of calomel reduced it.



Fig. 1.—ENLARGED SPLEEN IN A BABY WITH RACHITIS.

It then fluctuated between 98.6° F. and 100° until the day before the case was discharged, when it rose to 102°, and dropped to normal in the morning. The respiration went up to 72-84, and seemed to be difficult, but no evidence of lung involvement could be detected. There was considerable tympanites and the symptoms were relieved by turpentine stupes.

The general treatment was as follows: On admission the colon was irrigated and then a 1 per cent. of tannin was introduced. Calomel in $\frac{1}{10}$ grain doses and eudoxin in 1 grain doses were administered. Bone marrow was used in the form of a solution and given in doses of 5 drops three times a day. The dose was increased by 2 drops every other day. Strychnin and whiskey were given when the baby was weak. The intestinal condition improved, but the baby did not gain in weight and showed a tenderness when handled that was suspicious of scurvy. Cream mixtures, beef juice and orange juice were ordered. The breast-feeding was continued but was regulated to alternate with the feedings. Two weeks after admission the breast-milk began to fail, and a mixture of whey with cream was given every two hours. This mixture was gradually increased in strength and barley water added to it.

The baby improved but did not gain weight with any rapidity. One month after treatment was begun there had been an increase of 10 ounces. One week later, when the mother took the baby away, the baby weighed 9 pounds and 11 ounces—a gain of 12 ounces.

The spleen diminished so that it was only one-half the size shown in the photograph. The liver was almost normal. No evidence of scurvy remained and the baby was quiet and comfortable.

It was impossible to get any later history of the case, but as the progress had been so satisfactory while in the hospital, the outlook seemed very bright. The increase in hemoglobin from 23 per cent. to 42 per cent., and the red blood cells from 1,270,000 to 2,450,000 in one month, indicates that the improvement was more than temporary.

I am indebted to Dr. I. M. Snow, visiting physician to the Fresh Air Mission Hospital, for permission to report the case.

Hydrocephalus and Hypoplasia of the Adrenals.—Czerney (*Centralblatt f. Allgen. Path. u. Path. Anat.* B. x., H. 7. 1899) has found imperfect development or absence of the medullary portion of the adrenals in 5 cases of hydrocephalus in children. Since no signs of degenerative changes were observed, the author regards the condition of the adrenals as an anomaly of development. He has no adequate explanation to offer of this remarkable association of conditions.

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Edited by WALTER LESTER CARR, M.D.

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THYMIC ASTHMA AND THYMIC DEATH.

Scattered through the literature on the subjects of the lymphatic constitution, spasm of the glottis, persistent and enlarged thymus and sudden and unaccountable death under a variety of conditions (anesthesia, acute infectious diseases, etc.), we find much evidence to show that a peculiar anatomical constitution, known as the status lymphaticus—one feature of which is an enlarged or persistent thymus—exposes its possessor to a form of dyspnea and to the danger of a sudden and suffocative death. While occurring at times in the adult, this association of phenomena is especially observed in infants and children.

Friedjung has recently collected and reviewed the entire literature of this subject, and it is not a little surprising that a theme upon which so much has been written by Jacobi and

others should receive such meagre mention in current textbooks, especially as the subjects of "thymic asthma" and "thymic death" have been fruitful sources of controversy. The most recently published work on pediatrics, that of Williams, devotes about a dozen lines to this topic, but many standard authorities almost or quite ignore it.

The condition known as the "status thymicus" and "lymphatic-chlorotic constitution" is characterized by hyperplasia of all the lymphatic tissues of the body, including the thymus, the lymph nodes, the four tonsils and the spleen; and further by peculiarities of the heart and arterial system. Paltauf, the leading authority on this subject, would add a rachitic tendency to the above-mentioned stigmata; but numerous reports particularly note a robust and well-nourished appearance in cases of supposed thymic death.

It appears to be a well-attested fact that these lymphatic-chlorotic individuals are peculiarly inclined to sudden death without apparent efficient cause during the course of the acute infectious exanthemata, diphtheria, etc., so that the presence of this constitution may be said to prejudice a favorable prognosis in all of these diseases. Such individuals, especially infants, occasionally expire suddenly without any apparent reason whatever.

While some observers believe that there are numerous cases to show that a hyperplastic thymus may by purely mechanical compression cause paroxysms of dyspnea (laryngospasm), and thus be a perpetual menace to life, others, and notably Paltauf, utterly deny that the status lymphaticus causes its morbidity and mortality by thymic compression of the trachea. Friedjung is satisfied, from his review of the entire subject, that ordinary spasm of the larynx has no necessary connection with an enlarged or misplaced thymus.

To summarize: the status lymphaticus conduces to spasm of the larynx and sudden death, but the rationale of these phenomena is obscure and only partially satisfied by the theory of thymic compression of the trachea.

Bibliography.

Lessons on the Anatomy, Physiology and Hygiene of Infancy and Childhood for Junior Students, Consisting of Extracts from Lectures Given at Rush Medical College. By **Alfred C. Cotton, A.M., M.D.** Chicago: Chicago Medical Book Co. 1900. Pp. 174. \$1.50.

This work contains much that is of value to the junior student, and will, on the whole, prove useful. Anatomical and physiological facts are stated with accuracy, and their practical application is emphasized. The brief references to the embryology of the various organs are good in the main, but in several cases clearness has been sacrificed to brevity. This is most notable in the paragraph devoted to the development of the long bones (page 13). The chapters on nourishment and foods are full and good, and their usefulness is increased by the addition of a chapter on milk analysis. What is said in regard to the hygiene of infancy (early and later) and of childhood is sensible and true. The physiology and hygiene of the prematurely born infant are also discussed, and in this connection the incubator is illustrated and described. The choice of the title "physiological abnormalities" for the last chapter, which treats of inspiration pneumonia of the newly born, sclerema neonatorum, mastitis neonatorum, cyanosis infantum, etc., is certainly not a happy one.

The illustrations show careful selection and by far the greater number are original. Unfortunately for the general appearance of the book most of them are poorly executed and the make-up of the book is not what it should be. There are some minor typographical errors which can easily be corrected in a later edition.

Paralytic Deformities of the Lower Extremities: The Principles of Their Surgical Treatment. By **E. Noble Smith, F.R.C.S., Edinburgh, L.R.C.P., London.** With 51 Illustrations. London: Smith, Elder & Co. 1900. Pp. viii-99.

A careful perusal of this interesting little volume will show clearly the principles to be followed in treating the deformities of the lower extremities due to paralysis. The author is a firm believer in the value of mechanical support for the paralyzed

limb, but he also recognizes that operations are often indicated and emphasizes the fact so frequently overlooked by the general practitioner that "a further result of operation is that the use of mechanical apparatus and massage and electricity can be applied with effect," whereas these remedies may be useless or harmful when applied before the deformities are corrected. The book is unusually well printed and most of the illustrations are very good. The value of the monograph, however, would have been much increased, had a little more space been given to a description of the apparatus to be used.

Heart Disease in Childhood and Youth. By Charles W. Chapman, M.D., Durh., M.R.C.P., Lond. With an Introduction by Sir Samuel Wilks, Bart., M.D., F.R.S. London: The Medical Publishing Company, Limited. 1900. Pp. 101. 3s. 6d.

If anything were needed to give this little book a proper introduction it is to be found in the words of Sir Samuel Wilks who considers that what Dr. Chapman has written is of great interest and value.

To those who read the book the introduction is not necessary, for the illustrative cases are so well recorded that the salient points in the diagnosis, prognosis and treatment of heart disease in childhood are most easily understood, and the value of the careful attention that the author gave to his cases cannot fail to benefit those who study his book.

Relation Between Intestinal Putrefaction and the Sterilization of Milk.—Angelo Volpe (*Il Policlinico*) from the result of experimentation and careful observations concludes that by sterilization the qualities of milk are so changed that its assimilation is rendered more difficult. In the feeding of infants with sterilized milk, what is gained on the one hand by a diminution in the number of bacteria is lost on the other by the fact that only a portion of the milk is digested, the rest remaining in an undigested condition in the intestines, where it gives rise to putrefaction, which is not a harmless occurrence. Rather than submit all milk to this process of sterilization, the author would in most cases make sure that the source of the milk supply is all that it should be, and leave it in its natural condition.—*Medical Record*. Vol. lvii., No. 16.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 14, 1900.

WM. H. THOMSON, M.D., PRESIDENT.

ARTIFICIAL INFANT-FEEDING.

DR. ABRAHAM JACOBI read a paper on this subject. He gave the complete paper written for the Thirteenth International Medical Congress held in Paris and which he had read there in abstract. He said that most of the teaching with regard to infant feeding in recent years consists of dictatorial precepts founded not on clinical experience, but on supposedly scientific demonstrations and experiments. The authors seem to overlook the fact that while chemistry is an exact science very admirable in its way, it is not physiology and the infant stomach is not a test tube. Many of the publications on the subject are notable for the carping spirit that is so characteristic of ambitious mediocrity.

The science of man cannot be reduced to chemical or mathematical formulæ. Very suggestive material has been accumulating from experimental and laboratory research, but this must be tested in the light of clinical experience.

WHAT IS MOTHER'S MILK ?

This question is a much more complicated one than has been thought. It has been presumed too much that all mother's milk conformed to a definite standard. As a matter of fact, it is well known that a baby will thrive on one woman's milk and not on another's. Monti, who in recent years has made a large series of analyses of mother's milk, says that its constitution is only more or less constant. We know that its composition varies from time to time during the day and even from minute to minute during a single nursing. It varies according to the health of the woman, is modified by menstruation, excessive lactation and the like. It is evident then that we can obtain no possible uniform substitute that will be quite equivalent to mother's milk. The average of a series of analyses of mother's

milk is apt to be contradictory. It has been said that there is more albumin in woman's milk than in cow's milk, but it is doubtful whether all of this albumin exists as casein. Pfeiffer says that all nitrogenous substances in milk exist in the form of casein, but this is not universally accepted. There are analyses of mother's milk that seem to show that it contains less albumin than that of cow's milk. There is no doubt that there is more phosphorus and less sulphur in mother's milk than in cow's milk. Besides the phosphorus exists in the shape of acids in salts which are not so easily precipitated from their solution in woman's milk and so are much more easy of absorption. Analyses vary as to the comparative amount of proteids and nuclein in different milks. It is agreed that the milk curdling ferment forms larger curds from cow's milk than from woman's milk and this is an important element in their comparative digestibility. Nearly all the phosphorus in woman's milk exists in the shape of organic compounds, while in cow's milk the phosphorus salts occur as organic bodies rather difficult of assimilation, and hence it is that rachitis is so apt to develop in bottle-fed babies. The amount of iron in the two milks is about the same. There is less sodium in cow's milk, which shows the necessity for the addition of sodium chlorid for artificial feeding. The advisability of this addition was noticed clinically by the writer long before the deficiency of sodium in cow's milk was made known by the chemist. When cereals are added to cow's milk the deficiency in the sodium salts becomes still more marked. Professor Zweifel has called attention to the fact that one of the reasons for the frequent development of rickets in Saxony is that Saxon mothers, in common with the rest of the population, are accustomed to eat bread made without salt. There is a surplus of calcium in cow's milk which probably also influences the development of rachitis by its irritating presence. In general, however, it may be said that there is considerable latitude allowed by nature in the food that may prove suitable for the growing infant.

ADVANCES IN INFANT-FEEDING.

Only one definite advance has been made in the preparation of infant food for a number of years. This is the heating of the food beforehand in order to destroy its microbic contents. We have learned in recent years, how much danger there is in

dirty dairies. So long as scarlet fever and diphtheria occur in the families of those who supply milk, epidemics of these diseases will follow milk men's routes. So long as the dishes and milk pails may become soiled by the hands and clothes of those in contact with typhoid fever patients or may be liable to be washed in water contaminated with typhoid bacilli this disease will continue to be a milk as well as a water-borne disease. Of late years we have come to realize that tuberculosis may also occasionally be carried by milk. It is not so much the original contamination of the milk that is serious, however, as the fact that milk forms an excellent culture medium in which bacteria grow with extreme rapidity under favorable circumstances. A few bacteria may increase to millions in twenty-four hours. Short sterilization is not sufficient to destroy all of these bacteria. Not all of these bacteria are pathogenic, but in 80 per cent. of the milk distributed in Berlin some pathogenic bacteria were found. Besides even when bacteria are not specifically pathogenic their products may cause degeneration of the liver, pancreas and kidneys even though the bacteria themselves do not get into the circulation.

STERILIZATION.

As a rule heating must be carried to 100° C. in order to assure sterilization. Where the microbes themselves contain a quantity of fat or exist in fatty materials this is absolutely necessary. For the tubercle bacillus, for instance, or for bacteria that exist in butter or rich milk, an especially high temperature is required. Pasteurization at a lower temperature may be effective, but it is uncertain. One-fifth of one per cent. of lactic acid present in milk prevents pasteurization from completely accomplishing its purpose. The presence of lactic acid, however, inhibits the growth of most of the dangerous forms of bacteria. An objection to sterilization is that at high temperatures a change is worked in the albumin of the milk which makes it less digestible yet fails to destroy spores and leaves the toxins already manufactured by bacteria unchanged. The only sure method of destroying bacteria in an organic compound is Tyndalization, that is discontinuous sterilization, the substance being heated several times to a degree of temperature that will kill bacteria. During the first heating all bacteria are killed, certain spores only being left. Most of these spores

develop shortly after the first heating and while in the form of bacteria are easily killed by the second and third heating. Though the principle on which this method of frequent heating of milk is founded has become known only in recent years as the result of clinical experience he gave directions for treating the milk for infants' use in this way nearly forty years ago. It is the immortal merit of Soxhlet that he systematized this method of discontinuous sterilization. It is better that the process of sterilization should be carried out privately in the family than wholesale at some large establishment. It must be remembered that the membrane that forms on top of cow's milk when it is heated tends to keep bacilli and especially the tubercle bacillus alive and so the milk should be stirred during the heating or the scum should be removed.

SCURVY AND MILK STERILIZATION.

An impression has been gaining ground in recent years that the increase of scurvy noticed of late is somehow connected with the more general use of sterilized milk. Of the 379 cases collected by the American Pediatric Association, 107 occurred in children fed on sterilized milk. This is not a large proportion and it must be remembered that many good authorities deny all connection between sterilized milk and scurvy. Marfan, for instance, says that scurvy is always due to over-feeding. Over-feeding has, however, always been a fault of mothers, while there is no doubt that scurvy is much more frequent now than it was in the first years of the author's practice. There seems good reason to think that the long duration of sterilization or pasteurization has a bad influence on the milk in this respect and somehow produces changes that make it inassimilable. It has been the custom to advise pasteurization for from forty to sixty minutes, but this seems always to be a mistake.

MODIFIED MILK.

Undoubtedly the best food for infants can be made by modifying cow's milk. Dr. Rotch, of Boston, deserves well of the profession for having insisted on this point and taught a systematized procedure for the purpose. The milk that forms the basis of infant food should come from a large dairy, since it has been found that most of the infections traced to milk

supplies have come from small dairies. The milk should be gathered with the greatest care as to cleanliness, and should be kept on ice from the time of its milking until its consumption. An ideal modification of cow's milk suitable for all babies is an impossible desideratum. Rotch himself has suggested constant variation of the food until the prescription that agrees best is found. As the ingredients in the milk of various women and even of the same woman at various times, differ very much, it is a question of experimenting until the most suitable food is found. Not all children will thrive on modified cow's milk no matter how carefully their individual peculiarities are studied. Mild rachitis will develop in many cases and especially phosphorus and certain animal constituents will have to be added to the food in many cases.

POINTS OF TECHNIQUE.

The necessity for the sterilization of modified milk and of the vessels in which it is contained cannot be insisted on too much. This should be done at home rather than in a large laboratory. Many a doctor has found flies and other insects in laboratory bottles. These of course had been sterilized, but are not entirely unobjectionable. The laboratory sterilization method is not for the poor. The laboratory preparation of sterilized food is very expensive. Some one has said it takes a good income now to raise a child on laboratory food.

It has been suggested that the cream should be separated from cow's milk by a separator and then afterwards mixed in the proportion deemed proper for the child. For the separation a centrifugator of 6000 revolutions a minute has been suggested as necessary. It is doubtful whether the ingredients of milk separated by a force like this will ever reunite. One investigator has shown that while mice lived very well on milk as their sole article of food, they did not live if the milk had been passed through a separator and then its ingredients mixed together again. Milk is something much more than merely a solution of salts and organic substances. It is a fluid tissue and has a biological importance as such that cannot be measured by chemical analysis alone.

MILK SUGAR.

Rotch's original suggestion for the modification of milk included the addition of milk sugar in order to make up for what was lacking in cow's milk as compared to woman's milk. There

is some reason to doubt, however, whether the milk sugar in woman's milk is the same as that in cow's milk. The milk sugar obtained in the ordinary avenues of commerce is often impure. Besides it is probable that there is in any cow's milk enough milk sugar to accomplish the purposes that substance has in the food. Even a certain amount of the milk sugar of human milk is eliminated by the infant unchanged. It is much easier to give too much sugar than too little. It is probable that if sugar is needed cane sugar is as good as milk sugar since a certain amount of it is changed by microbic action in the infant's digestive tract to lactic acid and other products that result from milk sugar. Some of the milk sugar of milk is absorbed as galactose and glucose. There cannot be much harm then even from a strictly scientific standpoint in adding a small amount of cane sugar to milk, and clinical experience shows that this is often of decided advantage. Marfan suggests the use of cane sugar whenever sugar is to be added because of the difficulty of obtaining pure milk sugar.

Cane sugar accomplishes a good purpose when infants are constipated. A slight increase of the amount usually added to the milk will obviate the necessity for the use of laxatives.

FATS AND STARCHES.

Fats are added to cow's milk by some because of their value for nutrition and also because they seem to add to the digestibility of the casein in cow's milk. With regard to the use of starches a revolution of opinion has occurred in recent years. The addition of a certain amount of cereals to the infant's food is now acknowledged by practically all the authorities on children's diseases as a useful procedure. This use of cereals has been the practice and teaching of Dr. Jacobi for more than a quarter of a century. The old contention that the infant had no diastase for the conversion of starch into sugar is no longer considered to be true. Heubner, of Berlin, showed that diastase can be found in the parotid gland of the infant two hours old, sixteen days old, and two months old. An infusion of parotid gland converts starch into sugar from the beginning of life. An infusion of pancreatic gland does not convert starch into sugar and its diastasic power even at the end of a year is but feeble. The objections in the old literature of pediatrics to the use of starch in infant feeding referred to the excessive use or the exclu-

sive use of starchy food. Where cow's milk is diluted with some cereal according to the author's method the feces contain no fat and but very little starch.

It is evident, then, that cow's milk must form the basis of any food for infant's use and no artificial food without cow's milk can be expected to prove suitable. Study is gradually bringing us nearer to a suitable infant food, but as yet we have not reached the solution of the difficult problem. The time may come when nations will be less intent on destruction than on the conservation of human life and then perhaps even babies will be allowed to live.

DR. KOPLIK said that the chemical investigation of the feces of artificially fed infants has brought out the fact that the nuclein of cow's milk is not absorbed by the infant. Hence the phosphorus in the nuclein passes the gut unabsorbed. This will explain in part, perhaps, the frequency with which bottle-fed babies develop rachitis. In this respect mother's milk is very different from that of the cow. No modification of cow's milk can, therefore, be absolutely correct, and the simpler procedures are at least as likely to give satisfaction as the more complicated ones. When the infant does not thrive, then a few changes may be made until a satisfactory combination is found. Usually this is not difficult in healthy infants, but with some children every effort in this direction proves unsuccessful, and then the only hope seems to be human milk. We should obtain cow's milk moderately clean and fresh. It should be borne in mind that the sterilization and pasteurization of infant food is not a method of infant feeding but rather a hygienic procedure. It enables us to keep the food unchanged, especially in warm weather, and thus prevents disease. Its beneficial effect can be noted very well at this season of the year (October), when clinics and dispensaries have quite as many sick babies suffering with intestinal disorders as in the midsummer weather. This seems mainly due to the fact that with the advent of the cooler weather such a precaution as sterilization is rather neglected.

It is unfortunate that sterilized milk has been set down by some without reservation as a cause of scurvy. While there have been possibly half a million sterilized milk-fed babies every year, less than 400 cases of scurvy have been noted in a number of years, and these were not all fed on sterilized milk. It is

probable that scurvy would occur with any food in certain sick babies fed with the bottle, its real cause being the toxemia set up by the imperfect intestinal digestion of the food. Even if these cases of scurvy were due to sterilized milk exclusively, it would scarcely be a reason for rejecting sterilization, which is one of the greatest advances in modern hygiene. Scurvy, as we know, is a mild and readily curable disease in most cases, while sterilization protects the child from severe or even fatal gastro-enteritis, cases of which may occur in overwhelming numbers during the warm summer months if sterilization is neglected. This applies especially to the feeding of infants in large cities during the hot weather.

DR. HENRY D. CHAPIN said that we need clean, fresh milk as the basis of our infant food rather than the process of pasteurization or sterilization for freeing it from germs. Great advances have been made in recent years in supplying our large cities with better milk. At the present time he knew from actual investigation that New York City is supplied with a uniformly good milk. The medical profession could, however, do a great deal to still further improve the milk supply. Rules could be formulated for dairy-men, and the public could be educated into the necessity of and the taste for good milk. For this it may be necessary to pay a little more than at present, but the better quality furnished would amply repay the slight additional expense. As a modification of milk he believes in using dextrinized gruels as diluents. He does not consider that the presence of amylaceous material in small quantities is harmful, but on the contrary that it causes the milk to curdle in much finer particles and so makes its digestion much easier and more complete.

DR. WALTER LESTER CARR said that if fresh, clean cow's milk can be obtained very little heat is needed for its preparation as infant food. The important consideration is the modification of the milk to meet the individual requirements of the infant. There is no question as to the nutritive value of cow's milk, but its digestibility is not that of breast-milk.

One difficulty in the study of artificial feeding in infancy has been the desire to make a chemical standard. Milk may have changes produced in it that show only in the disturbed nutrition of the child, and yet the chemical composition of the

milk be satisfactory. The individual infant should be studied, and if this is important when it is breast-fed, it is much more important when the baby has to have substitute feeding.

DR. A. CAILLÉ sent a communication in which he stated that, to be successful in infant feeding, the doctor must not pin his faith to any one method, nor think that it is a matter of the composition of food according to accurate percentages. Each infant has a special food that agrees best with it, and the proportion of the ingredients that enter into it must be found by careful observation.

Treatment of Prolapsus Ani in Children by Ice Tampons.

—Hajeah (*Rev. Mens. des Malad. de l'Enfance*, November, 1899), records very successful results obtained by the use of ice tampons even in the gravest cases of prolapse of the rectum in children. The method consists in the introduction into the rectum of cone-shaped fragments of ice (suppositories) in the operation of reduction of the prolapse. The suppositories can be artificially frozen in moulds and should be three to three and a quarter inches in length and the diameter of the base should be one to one and a quarter inch according to circumstances. Such an iced suppository is enveloped in a piece of iodoform gauze, so that the latter covers it like the finger of a glove. The whole is then introduced into the centre of the prolapse and gradually and steadily pushed up till the prolapse is returned, the ice and gauze being carried up with the reduced bowel. Usually there is no pain experienced and the tampon is retained. It should be the rule to introduce a fresh ice suppository with gauze after each defecation. The prolapse in this way becomes less and less in degree and eventually ceases altogether. The beneficial result attained is due partly to relief of venous congestion and of laxity of mucous tissue of the bowel, and partly to the increased contractility and tonicity of the muscular coat produced by the coldness of the ice and the mechanical contractile reflex proved by it before it melts. The ice-cold water acts for a longer time as a stimulant. This procedure has always been successful in Hajeah's hands and is strongly recommended by him.—*British Medical Journal*. No. 2045.

Current Literature.

PATHOLOGY.

Jawein, G.: On the Cause of Acute Splenic Tumor in Cases of Poisoning and of Acute Infectious Diseases. The Physiological Function of the Spleen. (*Virchow's Archiv.* Vol. clxi., No. 3.)

Dogs were poisoned with potassium chlorate and with toluylendiamin, and the blood carefully studied by count and stained perforations until death occurred. The spleen was then examined microscopically. In every case in which the spleen increased in size the red blood corpuscles were reduced in number, and where the red cells did not decrease, the spleen did not grow in volume. The broken down red corpuscles were found in large numbers within the cells of the splenic pulp, and splenic hyperemia and hyperplasia ran parallel with the hematology. It appears, then, that in cases of poisoning the splenic tumor is due to the destruction of red blood cells whose products are heaped up in the spleen, where they cause an increase in the functional activity of the pulp cells. This increased function must of necessity be accompanied by hyperemia, hypertrophy, and hyperplasia. As the acute infectious diseases owe their organic changes chiefly to the poisons elaborated by microorganisms, it seems rational to suppose that the splenic tumor occurring in such diseases is similarly dependent upon the destruction of the red blood corpuscles. In malaria, typhoid fever, recurrent fever, anthrax, septic diseases, and typhus fever the splenic tumor and the diminution in the number of the red cells occur coincidentally; while in influenza both the blood count and the size of the spleen vary greatly in different cases. On the other hand, diphtheria shows neither an acute splenic tumor nor a diminution of old blood corpuscles; nor do measles, varicella, dysentery, etc. In pneumonia the spleen is not enlarged, the red cells are slightly diminished, probably owing to the bloody exudation. It is an interesting fact that Matthes and Eichhorst declare that just after the crisis, *i.e.*: during the absorption of the bloody exudation, the spleen is enlarged. In the different forms of anemia, chlorosis, and leukemia, the

presence of a splenic tumor would indicate the process to be one of blood destruction; its absence one of insufficient blood formation.

It seems very probable that one of the chief functions of the spleen is its action as a filter, more especially for the red blood corpuscles, in virtue of which the blood becomes cleared of broken down red cells.

MEDICINE.

Terrien, E.: Chronic Tuberculous Peritonitis in Childhood.
(*La Presse Médicale.* No. 71. 1900.)

The simplest and most logical classification of chronic tuberculous peritonitis is the purely clinical one based upon the three stages of the disease: The irritative exudation stage, with free ascites; the period of formation of false membranes, with encysted ascites; and the dry, fibrocheesy stage when the viscera become surrounded by the tuberculous products. These stages vary in the length of their duration, and the peritonitis may become arrested in any one of the three; or the first two may be so rapidly passed through that the disease is, apparently, fibrocaseous from the outset. This is rare, however. Three cases are cited. The first was that of a child of eight years, with tuberculous peritonitis in the stage of irritation and exudation; the abdomen was punctured. Fifteen months later the general health was still good, but the peritonitis had reached the third stage, the second having passed while the child was not under observation. In another case, that of a girl fifteen years old, the second stage (encysted exudate) was plainly apparent less than five months after the onset of the first. In the third case a little girl of seven years passed through the first and second stages in one month, and at the end of that time presented a typical case of dry, fibroadhesive tuberculous peritonitis. As a rule, the diagnosis of peritoneal tuberculosis in children is not very difficult. In the case of a young child, enlarged abdomen due to rachitis must be excluded first. During the first stage (of ascites) cirrhosis of the liver must be differentiated; in the second stage (encysted exudate) ovarian cyst should be excluded, and in the third (dry) stage, abdominal tumors and local peritonitis, such as perityphlitis, must be

ruled out. The prognosis is good in the early stage, about half of the cases being cured spontaneously. Medical treatment consists of perfect hygiene and good food, with counter-irritation to the abdomen. Surgical interference must be considered very early, because in the first stage it is desirable and very successful; in the second stage it is necessary, but in the third often impracticable. The combination of laparotomy with medical treatment has served to better the prognosis considerably.

McCrae, T. : Acute Leukemia in Childhood with Report of a Case. (*Johns Hopkins Bulletin.* Vol. xi., No. 110.)

A three year old boy was admitted to the Johns Hopkins Hospital with a slight cough and a peculiar area over the sacrum which had almost a gangrenous appearance. He had been healthy at birth, artificially fed, and chicken-pox was the only disease of infancy that he had had. About three months before admission bronchitis developed after taking cold, and a bruised, tender area appeared over the sacrum. Appetite and digestion remained good. The boy was large for his age, but strikingly pale and flabby; adenoids were present. There was no sight of rickets. Heart and lungs were normal; the spleen was hard, palpable and reached to the costal margin; no glandular enlargements. The temperature ranged from 99° to 103.3° F. The general condition became worse; there were restlessness, petechial hemorrhages, paroxysms of cough and dyspnea, several attacks of epistaxis and death occurred with convulsions, presumably due to cerebral hemorrhage. No autopsy was permitted. Examination of the blood on the day after admission to the hospital showed 35 per cent. of hemoglobin, 1,680,000 red blood cells and 26,000 white cells per c.mm., a ratio of 65 to 1. The differential leucocyte count showed 13.3 per cent. of polymorphonuclears, 41.5 per cent. of small and 45 per cent. of large lymphocytes, and .2 per cent of large mononuclears. One myelocyte and no nucleated red cells were seen. Three days later the polymorphonuclears had fallen to 4.4 per cent. and the small lymphocytes increased to 78.9 per cent., the large ones diminished to 16.7 per cent. One week after the first count was made, a second showed 1,760,000 red cells and 60,800 white, or 29 to 1. The hemoglobin fell to 32 per cent. The polymorphonuclear were .4 per cent. of all leucocytes, the small lymphocytes 96.6 per cent., the large 2.6 per cent., the

eosinophiles .1 per cent. and the large mononuclears .3 per cent. The lymphocytes were much smaller on the average, than in the previous specimens examined. The white cells diminished within the next five days so that the proportion of red corpuscles to white was 84 to 1. The red cells showed greater variations in staining.

The rapid course of this case (four weeks) is its striking feature. The red cells showed practically no diminution throughout, and varied but little from the normal in the stained specimens. The hemoglobin was relatively high; while this is usually characteristic of pernicious anemia, it frequently occurs in other blood conditions (lymphatic leukemia, splenic anemia). No nucleated red cells were found at any time. The lymphocytes showed a marked tendency to disintegration, and their nuclei, as a rule, took the stain poorly. The polymorphonuclears were absolutely reduced, the lymphocytes both relatively and absolutely increased.

Thirteen other authentic cases of leukemia occurring in children under ten years of age have been published thus far. The family history showed nothing of importance, in a number of cases the disease was accompanied by acute tonsillitis; 11 of the 13 occurred in boys. The onset was usually rapid; hemorrhages occurred in 10 and a hemorrhagic rash in 10. Fever was present in 8, but, as a rule, not high. The spleen was enlarged in all cases, the lymph nodes in 9, of these 5 had cervical enlargement only, usually associated with local throat or mouth conditions. In all cases the anemia was a striking feature. The conditions with which leukemia at this age is most apt to be confounded are: hemorrhagic purpura, and an acute infection with specially marked throat symptoms. The duration varied from less than a month to nine weeks. Treatment can be symptomatic only.

Bosanquet, W. C.: A Contribution to the Statistics of Rheumatic Fever and its Complications. (*The Lancet*. No. 4005.)

Of 450 cases of rheumatic fever admitted into Charing Cross Hospital, in the course of eight years, by far the greater number occurred between the ages of ten to thirty years. In 304 cases the date of the first attack could be fixed, and of these 50 per cent. occurred between the ages of eleven and twenty, while

under eleven years there were 17 boys and 21 girls. The earliest recorded instance was that of a boy three weeks old. No definite reliance can be placed upon the family history of these patients, but 22 per cent. gave a history of rheumatism in one or more members of their families. The largest number of cases occur during May and November. The knee and ankle are affected nearly twice as often as any other joints; the hip joint being not often attacked in rheumatic fever. In a few instances traumatism of a joint seemed to determine the seat of onset of the malady. The most frequent complication is endocarditis, either acute or chronic, the mitral valve being most frequently affected. Ulcerative endocarditis occurred in three cases. Pericarditis was present in 28 patients and proved fatal to 3. In one of the latter, a girl five years old, it was the only complication; in the other two pneumonia occurred at the same time. The frequency of the occurrence of relapses in rheumatism is difficult to estimate, but a rough estimate of 10 per cent. was made. Hyperpyrexia occurred in but two cases, in one of which it was associated with pneumonia. Possibly the early use of salicylates prevented its more frequent presence. Chorea developed in 3 per cent. of the cases, 11 females and 2 males, all under twenty years old. Pneumonia occurred in 14 cases, 2 being fatal. It is an interesting speculation as to what extent pneumonia and rheumatism are associated, especially atypical cases which end by lysis; the value of salicylate of soda in acute pneumonia is of interest in this connection. Two patients had chronic interstitial nephritis, one had subacute and one acute nephritis. Purpuric eruption occurred in 2 cases, epistaxis in 2, and one patient passed blood from the rectum. Erythema nodosum was observed in 9 female cases, other forms of erythema multiforme in 4 and subcutaneous nodules in 5. In no instance did death result from uncomplicated rheumatic fever. The 7 fatal cases were due to pericarditis in 1, pericarditis and pneumonia in 2, hyperpyrexia in 1, ulcerative endocarditis in 2 and bronchitis in 1.

The routine treatment was rest in bed, fluid diet and salicylate of sodium. An unduly early return to fuller diet or the premature omission of the drug was often in close connection with the occurrence of a relapse. In many chronic cases of joint disease treatment with hot air is certainly worthy of trial.

Netter: Acute Non-Tuberculous Meningitis. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., No. 8 and 9. Thirteenth International Congress of Medicine.)

Non-tuberculous meningitis may be primary (epidemic or sporadic), or secondary to otitis, to various suppurations, or to an acute local or general disease. In connection with otitis it must be remembered that phlebitis, sinus thrombosis and cerebral abscess may occur as complications as well as meningitis, and that the nervous symptoms are analogous in all. The symptoms of meningitis in the course of acute diseases, and especially in the beginning of a pneumonia, may be due to serous, and not necessarily to suppurative meningitis. There does not seem to be any hard and fast line which can be drawn between the epidemic and the sporadic form of the disease. The value of Kernig's sign must not be insisted upon too strongly, for while it is almost constantly found in non-tuberculous cases, it is also present in the majority of the tuberculous ones, therefore, it cannot be relied upon in differentiating the nature of a meningitis. Quincke's method of lumbar puncture is of invaluable aid in diagnosing meningitis, the physical, microscopical and bacteriological examination of the fluid withdrawn determining the nature and cause of the process. In cases of suppurative meningitis repeated lumbar punctures may be of service in treating the disease, and warm baths according to the method of Aufrecht are of great value.

Concetti: Acute Non-Tuberculous Meningitis. (*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., Nos. 8 and 9. Thirteenth International Congress of Medicine.)

Chemical and bacteriological studies of the fluid obtained by lumbar puncture were made in 90 cases of acute non-tuberculous meningitis and more than 60 other cases of diseases of the nervous system. Acute serous meningitis of toxic origin is frequent in the course of an acute gastrointestinal infection, pneumonia or other infectious disease, and occurs more rarely in a child apparently healthy. It is characterized by an increased amount of cerebrospinal fluid, which is clear, of a higher specific gravity and richer in albumen than the normal fluid and absolutely free from microorganisms. In another variety of acute meningitis the fluid varies from perfect clearness to purulence, contains one of several forms of pathogenic bacteria, and at

autopsy the meninges may be found only slightly altered, or may show any one of the stages of fibrinopurulent inflammation. The microorganisms most often present are the pneumococcus and the meningococcus, but the streptococcus, staphylococcus, typhoid bacillus, bacterium coli, bacterium lactis aerogenes and the bacillus pyocyaneus have also been found. In most of these cases of meningitis the cerebrospinal fluid is perfectly limpid, except in those caused by strepto- and staphylococci.

The pneumococcus causes a very severe and rapid form of meningitis, either primary or coincidentally with an attack of pneumonia. Benign cases are rare, though also of short duration. Meningitis due to the meningococcus is almost always primary, and shows a tendency to recovery; it runs a longer course and usually takes an intermittent form. The meningococcus may be looked upon as a unique bacterium, and the varieties described by Feichselbaum, Jaeger, Heubner, etc., are really only modifications produced by the diverse conditions under which they developed.

All forms of acute meningitis, except the very benign ones, either prove rapidly fatal or else tend to be prolonged for months, ending in cachexia, extreme atrophy and death, or in recovery which is incomplete because accompanied by hydrocephalus, blindness, deafness, or paralyses. Lumbar puncture is of great diagnostic value and sometimes also useful in making the prognosis, while it may become a valuable therapeutic agent when begun early and continued with greater or less frequency during the height of the disease. The very prolonged course seems to be obviated thereby, and when recovery does occur, it is complete. In tuberculous meningitis, on the other hand, lumbar puncture is neither of diagnostic nor of therapeutic value.

Specific and direct treatment of pneumococcus meningitis with antipneumococcus serum and the cerebrospinal fluid of children previously recovered from an attack of cerebrospinal meningitis, injected into the subarachnoid space by lumbar puncture, was well borne, and the fluid seemed to have a very favorable action on the meningitis. The method certainly merits wider application and experimentation, as it is absolutely devoid of danger.

Emanuel, C.: A Case of Glioma of the Pars Ciliaris Retinæ with Remarks on the Study of Tumors of the Retina. (*Virchow's Archiv.* Vol. clxi., No. 2.)

A boy of five and one half years, of good family history, has a ciliary staphyloma in the right eye. Traumatism was positively excluded. The right pupil was said to have been vertically lengthened at birth, and an apparent prolongation of the pupil ran horizontally to the margin of the iris. At the age of three years the right eye became inflamed and painful, and finally began to enlarge. The left eye was apparently normal. Enucleation was done, the child was discharged cured in nine days, and four years later reported in good health. Histologically the tumor was a glioma, originating in the pars ciliaris retinæ. From a study of the literature of the subject the writer concludes that no reliable case has been reported which proves that tumors originating from the inner layer of the secondary optic vesicle are ever of any other structure than that of a glioma.

Koloman, Szego: Convulsive Sneezing in Whooping-Cough. (*Archiv. fur Kinderheilkunde.* Band xxix., Heft 3 and 4.)

In this rare variety of whooping-cough the spasmodic attacks occur in the form of convulsive sneezing, instead of a cough. The case reported showed all the symptoms of pertussis. A younger brother of the patient, who was taken sick, just previously, had the usual convulsive cough. Filatow, in his "Lectures on Acute Infectious Diseases" refers to some cases reported by Roger, who has seen several of this variety. He states that instead of having paroxysms of cough the children are seized with convulsive coryza (coryza convulsif). The sneezing is repeated at intervals of from thirty minutes to one hour, and terminates with a profuse discharge of mucus from the nares, resembling the mucus expectorated at the termination of the regular pertussis paroxysm. A case has been reported by Henoch.

The history of the author's own case is as follows: A two year old boy was taken sick with bronchitis, the cough becoming spasmodic after several days. This child passed through a typical attack of whooping-cough. Meanwhile, a three year old brother of the former patient was taken ill with catarrhal

symptoms, sneezing and coryza predominating. At the onset of one of the paroxysmal attacks the child would become restless and cry. He held his breath as though attempting to avert the attack. Instead of the cough sneezing would follow with a second and third attack at short intervals. During these periods, while the child was sneezing, only scant secretion of mucus appeared, but at the end of the paroxysm copious and thick mucus was discharged. According to a statement made by the mother these attacks would sometimes terminate in vomiting. During all these paroxysms the usual congestive symptoms were noticed, as redness of the face, turgescient vessels of the neck and temples, conjunctivæ injected, and cyanosis of the lips. One remarkable fact during these attacks was the presence of laryngospasm, although there was no cough. Examination of the chest showed a tracheobronchitis, and the presence of a slight dilatation on the alveoli.

Richardière: Remarks on 1778 Cases of Diphtheria.
(*Rev. Mens. des Mal. de l'Enf.* Vol. xviii., Nos. 8 and 9. Thirteenth International Congress of Medicine.)

In every case the diagnosis was verified by bacteriological examination. The mortality was 15.7 per cent., but deducting those deaths which occurred within twenty-four hours after admission, *i.e.*, practically without treatment, it fell to 11.5 per cent. Among 1115 non-operated cases, 61, or 5.5 per cent., died; and of the croup cases operated upon 27 per cent. died. Injections of Raux's serum were given in all cases, and permanganate of lime (1-4000) used to wash out the throat. In simple cases neither local treatment nor internal medication is required. The only bad effect of the serum was the appearance of an eruption in 198 cases. This was either scarlatiniform, urticaria, roseola, purpura, erythema or polymorphous, appeared two to fifteen days after the serum injection, was accompanied by a slight elevation of temperature (1.5° to 1°), and almost constantly by a fetid, non-persistent diarrhea. In 15 cases pains in the joints were noted; these were only exceptionally inflammatory in character. The most common cause of death was bronchopneumonia, and the next in frequency toxemia. Suppurative submaxillary adenitis and otitis were the complications occurring most often. There were 51 cases of paralysis, chiefly limited to the palate; in 2 cases of hemiplegia the lesion was a cerebral

one. Diphtheria occurring in tuberculous children was especially grave, as 21 of 25 such cases proved fatal.

Streptococci were present almost constantly in the cultures of these 1778 cases, and the association of diphtheria bacilli and streptococci does not seem to have any prognostic significance.

Darling, T. Brown: Case of Bromoform Poisoning; Recovery. (*The British Medical Journal.* No. 2027.)

Having swallowed a dram and a half of pure bromoform, a six year old girl became suddenly unconscious after walking, as though intoxicated. Emetics were given at once. There was extreme collapse; absence of pulse at the wrist; heart-beat irregular, 120; respiration shallow and an odor of bromoform to the breath; the face and lips were livid, the pupils pin-point and did not react to light, and the conjunctival reflex was absent. Lavage of the stomach with warm water and bicarbonate of soda was continued for an hour and a half until the odor of bromoform disappeared from the washings. Strong coffee and sal volatilis were given through the tube and per rectum, and sinapisms were applied to the precordia. The pulse gradually improved, and the pupils became more nearly normal, consciousness returning two and a half hours after ingestion of the drug. There was the greatest tendency to sleep, the child having to be kept awake all day. Nothing was retained in the stomach until evening. On the following morning the child was in her usual health.

Engelmann, Rosa: History of a Case of Porencephalitis. (*Annals of Gynecology and Pediatrics.* Vol. xiii., No. 9.)

The family history of the case was as follows: The parents were Russian; father's history negative; maternal grandfather consumptive; mother's history negative. A child, born later than the one whose case is reported, was treated for head-nodding and laryngismus stridulous. The mother was undersized, and was subject to great hardships and fright while carrying this child. Labor was prolonged, as there was a cross presentation, for which turning and instrumental delivery was done. The babe was asphyxiated and it was some time before it was resuscitated.

When seven months old the baby suffered from almost continuous convulsions. There was some cranial deformity

which the parents thought due to instrumental delivery. The asymmetric elevations and depressions occupied both the left parietal and occipital regions, and were accompanied by an absolute synostosis. Some facial asymmetry and a right sided ptosis were manifest; but there was neither facial nor general paralysis. The child appeared idiotic, deaf, blind, and had internal strabismus. No ophthalmoscopic examination was made. Convulsions began during the second week of life. The movements started in the ocular and facial muscles, and extended until they were generally distributed.

On operation the bones of the skull were found to be hardened and thickened, especially at the sutures that were prematurely closed. A cyst was noticed and thought to be hemorrhagic, but the child was so collapsed that it was not opened. Death resulted two hours after the operation.

On autopsy there were adhesions of the brain coverings and the cerebral tissue, and decided evidence of inflammatory changes. The sclerosis atrophy and terminal cystic formation were doubtless of an intrauterine origin. The mesenteric lymph nodes were tubercular.

It does not seem plausible that labor or forceps could have induced such a sclerosis and atrophy, but that rather it was produced by prenatal inflammatory conditions of long standing, from possible pus infection of the mother, who had had a vaginal discharge, probably from an intrapelvic abscess.

Morse, J. L. : Rickets. (*The Philadelphia Medical Journal*. Vol. v., No. 21.)

Rickets is a chronic disease of nutrition. Rachitic children are often fat and heavy but the muscles are soft and flabby. Atrophic babies are almost never rachitic. Some of the earliest symptoms, which should suggest the possibility of the disease and induce a search for the characteristic bony changes, are fretfulness, languor, restlessness at night, kicking off of the bed-clothes, sweating of the head, rolling the head, boring the head into the pillow, and night terrors. Gastroenteric disturbances, if persistent, are always suggestive. Delayed dentition and delayed development of any sort are more often due to rickets than to any other cause. The intelligence is almost never impaired in rachitic children and Kernig's sign is not found. The usual changes in the bones are described.

Pulmonary complications are very common, partly on account of the increased vulnerability of the bronchial, in common with the other mucous membranes in this disease, and partly because of the feebleness of the respiratory muscles and the thoracic deformities. Bronchitis is an almost invariable accompaniment of the severer cases, and bronchopneumonia is not at all unusual. His experience would not lead him to think these cases more liable to tuberculosis than children debilitated from other causes. Localized areas of partial atelectasis and emphysema are not uncommon as the result of the thoracic deformities. Rachitic patients bear these pulmonary complications very badly, because of their enfeebled respiratory power. With them disease of the lungs of any degree of severity always carries a grave prognosis. Enlargement of the spleen is commonly found.

How unsuitable food and improper hygienic surroundings produce rickets is not at present known.

In the treatment of the disease the best form of fat is found in milk. Cod-liver oil is a valuable addition to the food.

Phosphorus is claimed to be a specific but the author does not think he has seen any such effect. The lime salts and the hypophosphites are regarded as valueless, unless as tonics. The child should have the greatest amount of fresh air and sunshine.

Stout, G. C.: Some Diseases of the Ear in Children.
(*International Medical Magazine.* Vol. ix., Nos. 5 and 6.)

After a description of the anatomy of the ear in children, the author states that the ears of children should be carefully examined in the exanthems and infectious diseases, and in cases of fever where the diagnosis is doubtful, on account of the liability of throat affections to spread through the Eustachian tube. Many of these cases are insidious.

Acute inflammation of the middle ear and acute suppurative inflammation, resemble each other very much in symptomatology. In the suppurative condition, however, the symptoms are apt to be more aggravated. Scarlet fever is the most fertile source of middle ear inflammation, and 20 per cent. of all chronic diseases of the middle ear originate in this disease. The ear is less frequently affected in measles than in scarlatina. The trouble results from the extension of the inflammation from the

throat through the Eustachian tube, but the otitis is usually of a less severe type.

In the very young ear pains are frequently indicated by the patient putting the hand to the affected ear, or leaning toward the affected side, also by restlessness and irritability. There may or may not be fever, although in the suppurative form there is apt to be a rise of temperature.

When there is suppuration and perforation, it is often difficult to see the opening in the drum, because of the swelling, but its presence may be recognized by the discharge. The results are: (1) healing; (2) transition to the chronic form; (3) suppuration, mastoiditis, meningitis or sinus phlebitis. The prognosis is generally favorable, except in the infectious cases or in weaklings.

In the treatment there should be attention directed first to the naso-pharynx which should be thoroughly sprayed with an alkaline antiseptic solution. The Politzer bag should then be applied to one nostril so as to blow any secretion out of the opposite nostril. The naso-pharynx should be wiped with a curved cotton-tipped applicator, to which is applied glycerole of tannin. The Politzer bag should then be used to gently inflate the middle ear. If the vapor of chloroform or iodine, or simply heated air is forced in, it will relieve pain, but the hot water bag or hot douche of boric acid may be used externally. Poultices and other applications usually made should not be applied. If the symptoms are severe, a paracentesis will often give relief when there is bulging of the membrane. Daily cleansing and Politzerizing should follow until suppuration ceases, and the patient should be kept in a recumbent position. Should the mastoid region become puffy, boggy, red and tender, especially if these symptoms are accompanied with puffiness of the posterior wall of the meatus, opening of the mastoid is indicated.

Chronic suppurative inflammation of the middle ear produces symptoms and results that are most varied and complicated. The tympanic membrane is almost always perforated and it may be thickened. There may be caries or necrosis. There is always hypertrophy and frequently hyperplasia. The naso-pharynx should be cleansed and all the structures kept carefully washed. Polypi will have to be removed. The

mucous membrane in obstinate cases may be treated with solutions of nitrate of silver (20 to 60 grains to the ounce).

The subject of ear diseases in childhood is given in considerable detail.

Kuhn: Case of Tetany, With Scarlet Fever, in a Child.
(*Berl. Klin. Wochenschr.* No. xxxix. 1899).

He describes a case of scarlet fever with complications, followed by general, as well as regional, tonic muscular spasms and rigidity accompanied by enormously increased general reflex excitability, which lasted for about two weeks, the child being conscious all the time. The absence of a wound or any febrile disturbance, and the trouble originating with stiffness in the muscles of the leg excluded traumatic tetanus.

The presence, to a marked degree, and the persistence of the symptoms generally known under the name of the Trousseau-Chvostek phenomena enabled Kuhn to diagnose tetany. He places this variety under the heading of toxic phenomena, and groups it with that class arising from extirpation of the thyroid, in cases of gastrointestinal disorders, and in the course of certain intoxications as from ergot, etc. It should be mentioned that there existed a predisposing factor, a neurotic tendency inherited from the mother. The exciting cause of the development of this complication may have been the fact that the patient had been wading in cold water for some time, on the day preceding the onset of the stiffness in the limbs. The child ultimately recovered its normal health.

Connor, Lewis A.: Technique of Lumbar Puncture.
(*The New York Medical Journal.* Vol. lxxi., No. 19.)

After quoting Quincke and other writers, the writer states that if puncture is made for the purpose of diagnosis, it seems to him best to enter the lumbo-sacral space, and have the child in the sitting position, well bent forward, so as to spread the bodies of the vertebra. General anesthesia is in most cases entirely unnecessary. Local anesthesia may be used. Just as perfect asepsis is demanded in this procedure as in opening any serous cavity.

An antitoxin needle 4 or 5 centimeters (an inch and three-quarters or two inches) long and 1 millimeter in diameter, serves admirably in children. A sterile test tube stoppered with

cotton should be at hand to receive the fluid. In introducing the needle it is directed very slightly upward and toward the median line. As the supraspinous and interspinous ligaments offer considerable resistance, it is usually wiser to avoid these by going slightly to one side. As the needle passes through the interlaminar ligament the resistance is increased. Beyond this the needle slips in very easily and is introduced until the fluid begins to appear in the syringe. It is much better to let the fluid run from the needle than to aspirate. The amount of fluid withdrawn will depend upon the purpose of the puncture.

Accidents are infrequent and, for the most part, trivial and unimportant. In a few cases of uremia and brain tumor death has followed, within a few hours, the withdrawal of a large amount of fluid.

Occasionally, when the fluid is blood stained, it will obscure the character of the fluid. Except for the annoyance, it has no importance.

Weisbecker: Treatment of Diphtheria by Serum Obtained from Diphtheria Convalescents. (*Munch. Med. Wochenschr.* No. 3). 1899.)

At various times he has obtained surprising results in the treatment of measles, scarlet fever, typhus and pneumonia through the injection of the serum obtained from the convalescents of the corresponding disease. (See *Zeitschr. für Klin. Medicin.*, Nos. 30 and 32, and *Munch. Med. Wochenschr.* Nos. 7 and 8, 1898.) He has used in the same way the serum obtained from patients convalescent from diphtheria for the treatment of 39 patients sick with this disease. All the cases occurred during one severe epidemic, the diagnoses in the majority of cases being verified by bacteriological examination. The most noticeable effect of the injection of the serum was that produced on the general condition of the patients. In a great many instances there was a complete change in the subjective symptoms and the prostration gave way to feelings of relief and well-being. The local manifestations of the disease and the fever did not disappear more rapidly than usual except in a few cases, in others the temperature persisted; while in several instances the membrane even extended and temperature rose considerably. The prognosis of the cases treated in this manner depended upon the effect of the injection on the general

condition. If this improved soon after the injection, even with persistent high temperature and severe local manifestations, the prognosis was good.

In cases of laryngeal diphtheria, where the local condition is of supreme importance, the serum has proven very efficient. A timely injection, administered to 8 children under four years of age prevented stenosis and speedily dispelled the symptoms of croup. One child, three years of age, in whose case stenosis was present at the time of the injection, had the operation of tracheotomy performed, followed by recovery. In a large percentage of cases of croup, treated by injections, besides the disappearance of the croupy cough there was noticed a sharp rise in temperature, terminating by a crisis with profuse perspiration.

He considers this sudorific action of the remedy as specific. The serum used in the treatment of these cases must be obtained from convalescents who have not been treated by antitoxic serum. One injection only is required, and the quantity used varies with the age of the child, from 1 to 2½ drams. Secondary or unpleasant results have been noticed much less frequently than where antitoxin has been administered.

An article by the author on the technique and the production of the serum is to be found in No. 32, 1899, of the *Munch. Med. Wochenschr.*

Callari, Ignazio: On Rega's (or Fede's) Disease. (*La Pediatria.* Vol. viii., No. 5.)

While various authors have already made mention of "sublingual fibroma," Rega, in 1781, was probably the first to attempt to isolate a new disease, termed by him glosso-frenulitis membranosi, which appeared to attack by preference very young infants. In the same year Chiariello gave to the newly described affection the name of Rega's disease. In 1890, Fede treated of the malady in detail, and renamed it sublingual hypertrophy. Callari would distinguish the affection by the name of Fede's disease. Clinically the condition appears as a pseudomembranous deposit upon the frenulum linguæ, which, however, is dependent upon the subjacent alterations.

There appears to be no doubt that the disease in question consists actually of small fibroid tumors, although some authorities regard it as papillomatous in nature. Its etiology and nature have been much discussed and are still obscure. The treatment consists in the use of the thermocautery.

Symes, J. O.: Non-Bacillary Croup. (*The Bristol Medico-Chirurgical Journal.* Vol. xviii., No. 67.)

The word "diphtheria," in the condition of acute membranous affection of the fauces extending to the larynx and trachea due to other agencies than the Klebs-Löffler bacillus, is, in the author's judgment, incorrect. The author recognizes that a non-bacillary croup is not accepted by all observers, and he publishes reports of 8 cases where the symptoms were those of laryngeal stenosis without the presence of the Klebs-Löffler bacillus. All the cases, however, showed various microorganisms, the most common being the streptococcus and the staphylococcus. Antitoxin was injected and tracheotomy was done in most of the cases; 4 of the patients died. It is believed that this form of croup is much more sudden in its onset than that of diphtheria, and the temperature rises quickly and to a higher point. The membrane is softer, less firmly adherent, and does not cause bleeding when detached. In one case where the urine was obtained there was no albumin.

The paresis which leads to regurgitation is chiefly seen in cases in which the soft palate has been heavily coated. It is seldom severe.

These cases show that non-bacillary croup is not a rare disease and that it has a high mortality. Death is generally consequent upon the general septic infection or upon bronchopneumonia. In marked septicemia cases it is possible that relief would follow the use of anti-streptococcus serum.

Clarke, J. Mitchell: Two Cases of the Sporadic Form of Epidemic Cerebro-Spinal Meningitis. (*Bristol Medico-Chirurgical Journal.* Vol. xviii., No. 68.)

Of the two cases, one was a boy of ten years, with the usual symptoms of the disease. He died from exhaustion. The *post-mortem* examination was made eighteen hours after death. Cultures were made from the exudation from the lower dorsal and lumbar regions of the cord. The results corresponded in morphological characters and staining reactions to the diplococcus meningitidis of Weichselbaum. Lumbar puncture was not attempted in either case.

From a clinical point of view, a marked feature was extreme and constant restlessness.

Finizio, Gaetano: The Plantar Reflex in the New-Born.
(*La Pediatria.* Vol. viii., No. 8.)

In 70 per cent. of cases this reflex consists of flexion and in only 15 per cent. of extension of the toes. The phenomenon is often seen after unnatural labors, forceps deliveries, etc. It is frequently associated with exaltation of the cutaneous and tendon reflexes.

Fisher, T.: Rheumatic Disease of the Cardiac Muscle.
(*The British Medico-Chirurgical Journal.* Vol. xviii., No. 67).

Clinically the possibility of lesions of the cardiac muscle following rheumatism is rarely thought of and this is not to be wondered at as their presence is rare, though lesions may exist with associated valvular disease and adhesions of the pericardium. Some fibrosis of the cardiac muscle is not infrequently seen in the autopsy room in cases of rheumatic valvular disease, but it is not often that a case with marked interstitial change is recorded.

A boy of eighteen years died suddenly, and at the necropsy the heart was found enlarged and weighed 21 ounces. There was old thickening of the aortic valve. The sinus surface of the left ventricle was dotted with grayish-white spots and section of the heart showed these fibroid areas extended through to the pericardium. They were more numerous near the apex than elsewhere. Although it was not possible to get a history of rheumatism the disease may be inferred.

Another case was seen in a baby of four and one-half months who had a bronchopneumonia. After death the heart was found to present thickening of the aortic valve and extensive interstitial change. The pericardium was healthy. Although it may be possible to have the morbid appearances described due to a disordered circulation of the heart it is reasonable to consider that the fibrous tissue indicates the former presence of myocarditis set up by rheumatism. It is found that acute myocarditis may be set up in cases of old endocarditis. A case in point was a boy of twelve years who had a mitral stenosis. The heart action became weak, rapid, and there was cardiac pain. On autopsy the pericardium was found to be healthy, but the ventricles were studded with yellowish spots and streaks. These spots showed in the cardiac muscle. The

flaps of the mitral valve and chordæ tendineæ were thickened and the mitral valve stenosed. Microscopically there was found to be a degeneration of the muscle fibres, and some inflammation of the interstitial tissue was present. The rapid fatality of many cases is the best evidence of the poisoning of the cardiac walls. In some cases we have the direct action of toxins to consider. When dilatation of the heart occurs in acute rheumatism, a mitral regurgitant murmur may develop, due to the dilatation and not to the lesion of the valve. This should be thought of with reference to prognosis. After attacks of rheumatism and chorea the heart muscle may be weak with symptoms of lassitude, pain over the heart, faintness and paleness. The physical examination does not always disclose anything abnormal. Tachycardia has been observed in a number of such cases. Some cardiac weakness lie unsuspected beneath attacks of hysterical angina pectoris.

In a child it is easy to mistake physical weakness for laziness.

Bowles, R. L. : Double Cardiac Murmurs in a Boy. (*The Polyclinic.* Vol. iii., No. 7.)

The boy, who was sixteen years of age, believed himself strong until his heart was examined. He had played games and been active without any symptoms except occasional shortness of breath. He had whooping-cough and small-pox when young.

The heart was enlarged with an impulse of a heaving character and well-marked mitral and aortic systolic murmurs.

Bowles, R. L. : Case of Hemiplegia in a Boy. (*The Polyclinic.* Vol. iii., No. 7.)

The boy of eleven years who had the hemiplegia gave no family or personal history. The illness began with a thickness of speech and a reeling walk. The day following he was unable to use his right hand and he dragged his right leg. There was no loss of consciousness. On close inquiry it was learned that he had been nervous before these symptoms began. The only sign of disease was the hemiplegia and all organs were healthy. There were a few enlarged cervical lymph nodes. There were no symptoms of intracranial tumor. In all probability the disease was a "cerebral thrombosis of unknown origin."

SURGERY.

Nichols, E. H. and Bradford, E. H. : The Surgical Anatomy of Congenital Dislocation of the Hip-Joint. (*The American Journal of the Medical Sciences*. Vol. cxix., No. 6.)

From the examination of five museum specimens of congenital dislocation of the hip-joint (including eight joints), obtained from patients aged four and ten years and in adult life, it appears that the anatomical conditions vary within considerable limits in individual cases, though some are tolerably constant, particularly the peculiarities of the bones. The acetabulum is triangular, shallow and often insufficient to retain the femur in place even if reduction is accomplished. . Sometimes a new articular surface is present upon the surface of the ilium. The head of the femur is small, with the articular area diminished and irregular in shape; the neck is generally short, the angle it makes with the shaft approximating a right angle. The angle of femoral torsion is increased by adaptive rotations of the femur on its vertical axis, so that the knee is brought forward. Consequently, if reduction is accomplished the knees will tend to face inward and a secondary osteotomy may be required. The capsular ligament is irregular to a variable degree; it may be hour-glass shaped, or globular with or without a diverticulum extending into the apex of the acetabulum, it may be too short to allow the head to remain in the acetabulum after reduction. The ligamentum teres is absent in the cases examined. The cotyloid cartilage is small and thin, or may be wanting. The capsular ligament is thickened, especially just above the apex of the acetabulum, thus forming a retaining lower rim for the false acetabulum and an obstacle to reduction of the head. Only the adductor muscles offer marked resistance to reduction of the deformity.

The anatomical peculiarities in congenital dislocation of the hip are: dislocation of the head of the femur upward and slightly forward upon the surface of the ilium; a shallow, triangular acetabulum facing more or less directly outward; diminution in size of the head of the femur; diminution of the angle between the neck and the shaft to nearly a right angle; increase in the angle of femoral torsion; a capsular ligament, in the form of an hour-glass or simple sac, adherent to the surface of the ilium above, sometimes dilated about the acetabulum

and constricted about the neck of the femur. The obstacles to the reduction of the deformity are: the peculiar attachment of the capsular ligament which causes shortening of the ligamentous bands, chiefly laterally and below, constriction of the middle of the capsule, through which it may be impossible to draw the head; thickening of the capsule just above the apex of the acetabulum, adhesions between capsule and head of femur; contraction of the adductor muscles; increase of femoral torsion, so that the knee loops inward when the head of the femur is placed in the normal acetabulum. After complete reduction the obstacles to retention of the head of the femur are: a flattened or insufficient acetabulum, placed too obliquely; an insufficient head; an extremely short neck of the femur; obliteration of the cavity of the acetabulum by a mass of dense fibrous tissue.

The skiograph is of great value in the treatment of these deformities, although, owing to the fact that the rays will penetrate the cartilage, much is left to the imagination for interpretation. The permanency of the benefit to be obtained from the correction of congenital dislocation of the hip has been well demonstrated by cases where the reduction has remained three or four years, but the subsequent growth of the limbs ten years or more after operation has not yet been demonstrated.

Whalen, Charles J.: Intubation of the Larynx. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 22.)

The author gives a general history of the operation from the time it was first suggested by Bouchet in 1858, and speaks of O'Dwyer's valuable work. Generally intubation in private practice should be accorded first place, because it is less formidable than tracheotomy, and can be done by the practitioner alone. Since the period of diphtheritic stenosis has been so shortened by antitoxin, tracheotomy as a routine operation is hardly justifiable, at least until intubation has been attempted.

The indications for intubation may be said to be the same as for tracheotomy. Intubation should be learned by every physician, so that he does not have to depend upon a specialist. The author uses the combined introducer and extractor, modeled very closely after the O'Dwyer extractor. There is a ratchet lock in the handle, in place of the screw, which prevents, in extubation, the tube from dropping back into the larynx or

esophagus at the critical time. Some modification of the tube has been made, the top opening being funnel-shaped, which facilitates the introduction of the beak of the instrument when the tube is in the larynx. The lower end of the tube is cut off at an angle of about 45° , slanting from right to left, so that it will facilitate its passage between the vocal cords. The hard-rubber, metal-lined tubes are preferred.

General directions for intubation and the management of the cases in extubation are given.

Mates, Rudolph : Intralaryngeal Insufflation. (*The Journal of the American Medical Association.* Vol. xxxiv., No. 22.)

The article is a historical and descriptive review of insufflation for the relief of acute surgical pneumothorax and other conditions which require insufflation of air for purposes of resuscitation. In pediatrics the operation was advocated by Depaul in asphyxiated infants in 1845.

The various instruments up to the time of O'Dwyer are described. An apparatus having a rubber bulb or bag, and fitted with the conical and graduated forms of O'Dwyer's tips, to fit into the glottis, has been used with success by Dr. Bloom, of New Orleans. Practically the instrument has the bulb of a Davidson syringe, with a valve at the free end of the tube which is attached to the O'Dwyer canula.

Ward, Charles : Note of a Case of Lannelongue's Craniectomy. (*The British Medical Journal.* No. 2061.)

A boy of six years was decided to be suffering from syphilitic hyperostosis of the skull, and it was decided to operate to relieve his sufferings, which were very painful. The chief symptoms were a large head for the age of the boy, hard, regular, symmetrical thickening of the skull; haziness of the cornea; profound symmetrical deafness; almost complete obliteration of the post-nasal fossa; foul discharge from the nostrils, and complete loss of speech. The boy was restless; had sudden, violent attacks like mania.

A trephine opening was made in the parietal bone, the bone was then cut through forwards the whole length of the incision about half an inch from the sagittal suture, to the breadth of about a quarter of an inch. The bone was very thick and of stony hardness. There was a very free hemorrhage. The

dura mater bulged out and was punctured, letting out about two ounces of clear fluid. The boy's condition being favorable, the same proceedings were carried out on the right side.

The boy recovered from the actual operation rapidly and uneventfully. In three or four months he was very much improved. The deafness was nearly gone, the cornea was clear and bright, and speech had returned so far as to enable him to say a few words. He "took notice"; the screaming and maniacal fits had completely disappeared, and also had the nasal discharge. He slept and ate better, and his general condition was improved. But his legs, which had been weak, were much worse, and he could no longer walk.

Unfortunately, five months after the operation, while still apparently improving, he was suddenly seized with a "fit" and died suddenly. A *post-mortem* examination was not allowed.

The case is of some interest as contributing to an estimation of the value of the operation as a curative or palliative measure.

Marsden, R. W. : Two Cases of Perforation of the Intestine During an Attack of Typhoid Fever, Treated by Laparotomy; One Recovery. (*The Lancet.* No. 4008.)

The first case was that of a boy of sixteen. He had been doing very well except that he had a relapse of moderate severity. He complained of acute pain in the abdomen, which caused the legs to be drawn up, and was accompanied by an ineffectual desire to micturate. The pain increased in severity, the abdominal muscles were in a state of tonic contraction, and on percussion there was an absence of liver dulness at the ends of the eighth, ninth and tenth ribs on the right side. Pulse 88; temperature, 99.2° and there was no evidence of "primary shock." Five hours later there was marked tenderness between the umbilicus and the right anterior superior iliac spine, and a greenish fluid had been vomited on three occasions. As the patient was looking much worse, pulse rapid and small, temperature 102.8°, it was decided to perform a laparotomy, which was done about eight and one-half hours after the onset of the peritonitis.

On opening the abdomen through a median incision, a considerable quantity of yellow serous fluid exuded. The intestines were then not at all distended. The perforation was found six inches to the cecal side of a Meckel's diverticulum, which

was used as a landmark. The perforation had apparently arisen from a progressive ulcer. There were no signs of sloughing and no peritoneal adhesions. The perforation was closed by folding it inwards and uniting the peritoneum by means of Lembert's sutures. A large drainage tube was used and the cavity was irrigated with saline solution. The patient did well and recovered.

The second case was that of a boy of eighteen, who had a moderately severe attack of typhoid fever. He complained of pain in the abdomen after defecation, and there was found to be a general tenderness over the hypogastrium. Respirations were shallow, the tenderness increased in degree; temperature remained between 102° and 103° ; and the pulse was small and rapid.

The operation was done about eight hours after the onset of the peritonitis. The perforation was found occupying the centre of a thickened edematous patch. Its edges were distinctly sloughy. Owing to the edematous condition the peritoneum was very friable, which made it difficult to hold the sutures. There were evidences of numerous other inflamed patches in the bowel. The general treatment was similar to that of the first case. There was considerable collapse, from which he rallied, and the next day seemed to be progressing favorably, but he failed and died forty-eight hours after the operation.

In the first case the patient was at the end of a relapse and evidently beginning to convalesce; whereas in the second patient the fatal termination was undoubtedly almost solely due to the typhoid toxemia as the patient was in the height of the disease. In considering these two cases, one cannot help concluding that such factors as age, time of operation after perforation and type of case, that is, whether a tympanitic abdomen preventing leakage of intestinal contents, or a doughy abdomen allowing free extravasation, are insignificant as regards a successful issue, compared with the general condition of the patient at the time of the operation.

Parker, Rushton: Case of Hare-Lip and Unusual Tumor of Prolabium, etc. (*The British Medical Journal.* No. 2060.)

A male baby twelve days old had a double hare-lip, and in place of the appendage composed of prolabium and premaxilla usually found in such cases, there was a globular tumor in the same situation covered with white skin and in size about half

of the width of the mouth. The nose was pushed up and flattened. The composition of the tumor was purely fatty, firm and granular. Its removal left a small triangular gap between the two bones of the upper jaw. The first operation consisted in closing the right cleft. When the baby was twelve weeks old the left side was closed. The result was not satisfactory as the prolabium was bound down to the gap in the upper jaw. Eight days later the whole prolabium was cut away and the outer edge of each original cleft was fastened and the nasal frenum narrowed. When nine months old a fourth operation was done by the removal of some of the central scar and by slitting the nose and paring the edges so as to bring the nostrils nearer together.

HYGIENE AND THERAPEUTICS.

Chatinière: Phototherapy of Measles. (*Arch. de Méd. des Enf.* Vol. iii., No. 9.)

Seven cases of measles were treated by means of red light (red curtains being hung at the windows), with excellent results. The temperature fell and the eruption disappeared rapidly. The room should be moderately large, with two windows, and the bed so placed between them that the light falls directly upon the patient.

Van Natta, H. L.: A Case of Tetanus Treated with Antitoxin. (*The Therapeutic Gazette.* Third Series. Vol. xvi., No. 6.)

A girl of five years who was injured by a rusty nail penetrating the sole of her foot had four days later some difficulty in masticating her food. The cervical muscles became painful and rigid, and in spite of the use of bromids the symptoms became more severe and extended to the whole body. Chloral and morphin were also administered. Eight days after the accident the symptoms were so severe that it was thought that the patient could not survive. On the eleventh day ten cubic centimeters of antitetanic serum were injected. One hour after the first injection the child was asleep. Three hours after this another dose was given. The spasms that were associated with the first injection were not repeated with any severity. The next day a third dose was injected. The temperature fell

and the patient's muscles became relaxed. In three days another (the fourth) dose of serum was administered and the patient made a good recovery. The reporter believes that he would have had a quicker and more satisfactory effect from the serum if he had given the antitoxin every eight hours until the temperature reached normal.

Abt, I. A.: The Treatment of Pneumonias of Infancy and Childhood. (*Medical Review.* Vol. xli., No. 25.)

The prophylaxis of pneumonia consists in the early treatment of every case of acute bronchitis and nasal catarrh which comes under observation. Such children should be confined to a warm and well ventilated room. The nasal cavities should be cleansed several times daily with mild alkaline antiseptic or saline solution. Where there is laryngeal irritation and cough, the child should be put to bed and given hot baths at a temperature of 95° to 100°. With pneumonia, the patient should be placed in bed, the temperature of the room kept even at about 70°, with plenty of air space, and there should be a sufficient supply of fresh air. The patient's position should be frequently changed. The food should be carefully supervised. Milk is the main article to be used, and where there is difficulty of digestion it may be peptonized. Water is to be given freely. Medicinal treatment is important; begin with the use of calomel, which is especially indicated if there is gastric irritation or constipation.

The author has seen reduction of temperature follow the use of chest compresses, in which a piece of flannel or a towel was used to envelop the child, after having been dipped in water about 65° to 70° F., and then covered with another flannel. This compress is changed every half hour or hour. If not sufficient to reduce temperature, cold or tepid sponges are employed. Sometimes tubbing at a temperature of 90° to 95° may be necessary. Warm baths are indicated with weak and debilitated children. Friction should always be maintained while the child is immersed, and the bath should not last longer than five minutes.

Excessively large doses of alcohol should be avoided. Brandy or whiskey diluted may be given, half to three ounces in twenty-four hours, for children under four years of age. Aromatic spirits of ammonia is also useful. It seems better not

to use digitalis, strophanthus and caffen in a routine way, but to hold them in reserve until the condition of the circulation demands them. Where the pulse is small and weak, nitroglycerin has proved of great value. Emetics and expectorants have no place in the rational treatment of pneumonia. When the symptoms of bronchitis are prominent and the secretion is scanty, relief is sometimes obtained by steam inhalations. The cough in these cases is seldom so severe as to require the use of opium; the pain can usually be controlled by the use of the ice-bag or cold compress. Counter-irritation with mustard or turpentine is of value. In protracted cases, general supporting treatment should be persisted in.

Baginsky urges that venesection should be tried. It has not found favor in this country. The present treatment of pneumonia in children at its best leaves much to be desired. Little is to be hoped from the use of a specific antitoxin treatment, as more than one microorganism is concerned in the production of pneumonia.

Durante, Durando: Abdominal Massage in Ascites of Infants, Especially in the Ascitic Form of Tuberculous Peritonitis. (*La Pediatria*. Vol. viii., No. 6.)

In the tuberculous ascites of infants in which the type of disease is not one of marked severity, abdominal massage, while not strictly speaking a remedy for the disease, is an effective measure for the ascites as a symptom, tending as it does to cause absorption of the fluid in the peritoneal cavity. The sessions of massage should be held every other day, and should have a duration of ten minutes each. Green soap to the amount of a teaspoonful, should be employed as a lubricant in executing the massage movements.

Cobbett, Louis: Has Antitoxin Reduced the Death Rate from Diphtheria in Our Large Towns? (*Edinburgh Medical Journal*. No. 540.)

The apparent lowering of the mortality of diphtheria since the introduction of antitoxin, five years ago, may be due in part to bacteriological diagnoses of unsuspected cases, and to the increased accommodation provided for hospital treatment of this disease; yet the recovery rate from laryngeal diphtheria, which has nearly doubled, can be explained only by the curative properties of the serum.

Cobbett, representing the pathological laboratory of the University of Cambridge, has recently studied the diphtheria statistics of ten of the largest cities and towns in England. In London the five antitoxin years averaged 8 per cent. less mortality from the disease than the six preceding years. The mean case-mortality during the antitoxin years was 17.2 per cent.; of the five years immediately ante-dating the introduction of antitoxin, 24.4 per cent.; of the year 1899, 14.3 per cent.

In Edinburgh, as in London, the death-rate columns in Cobbett's graphic representations fall away from the notification-curve, but this deviation set in at a comparatively late date, 1898. From a mortality-rate of over 20 per cent. before 1898, there was a drop to 14.1 in that year, and a further reduction to 10 per cent. in 1899.

In Glasgow the improvement in mortality records begins abruptly in the antitoxin year, 1895.

In Liverpool, however, we find that the very reverse obtains, this city being in a class by itself. From a low mortality-average (14.8 per cent.) in preantitoxin years, the death-rate has been on the increase since 1894, and reached a maximum of 32.6 per cent. in 1899.

In Manchester, comparing the deaths from diphtheria with the notification-curve, we see that the lessened mortality can hardly be attributed to the use of antitoxin, but rather to diminished prevalence of the disease.

In Leeds, during the antitoxin years, the mortality has fallen off while notifications have shown an increased morbidity.

Birmingham does not appear to have been benefited by antitoxin, while Bristol's improvement is seemingly attributable to this factor.

Newcastle-on-Tyne shows marked improvement in antitoxin years.

The author now cites the figures of some of the large continental and American cities, certain British colonies, etc., and arranging the mortality-figures in columns with his English statistics, the falling off in deaths during the antitoxin years appears to be the rule wherever the serum has been used; while the improvement is in many cases so radical that the opposing figures of a few cities by no means offset the posi-

tive results of the majority. The anomalous reports may be due in some instances to the epidemic prevalence of a severe type of the disease. The high morbidity from diphtheria with resulting large number of deaths in the American cities appears to exceed by far the corresponding figures in cities of the old world, and he is inclined to attribute this excess to the custom of the American children of chewing gum which has been in the mouths of infected playmates.

Fede, F., and Gallo de' Tommasi, G. : Intestinal Antisepsis in Infants. (*La Pediatria*. Vol. viii., No. 7.)

In all pathological manifestations, whether of auto-infection or auto-intoxication, affecting the gastrointestinal tract, it is always useful to employ an internal antiseptic, preferably calomel in fractional doses. This drug has been found by the authors to exceed both tincture of iodine and salol as an antiseptic and antizymotic.

Felt, C. L. : Iodin-Bearing Drugs in the Treatment of Chronic Purulent Otorrhea. (*The New York Medical Journal*. Vol. lxxi., No. 25.)

In cases of suppuration of the middle ear, where the discharge is profuse, the ear should be syringed thoroughly two or three times a day with a warm 2 per cent. carbolic acid solution or some other antiseptic solution. After cleansing in this way, it should be mopped dry with absorbent cotton, and an antiseptic dusting powder should be blown in. Iodin in some form is markedly beneficial, and in iodoform the value depends upon the free iodine which is liberated and stimulates the sluggish tissues. Its odor, however, is greatly against its use in private practice.

The last iodine containing powder which the author has used, and which has given him great satisfaction, is iodomuth, a bismuth powder containing 25 per cent. of iodine. After using it for nearly two years, he believes it has been of more service than any other drug. It deodorizes the discharge, has a local sedative action, and does not cake in the canal.

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FETAL AND INFANTILE TYPHOID.*

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Although much has been written in the past regarding this subject and many cases reported from time to time, yet, on account of the inherent difficulty of the diagnosis from either a symptomological or pathological standpoint, but little reliance can be placed on the earlier data and no satisfactory conclusions drawn from them. Since the accurate differentiation of the typhoid bacillus and the discovery of the typhoid serum reaction, however, a certain amount of material regarding fetal and infantile typhoid has accumulated which can be relied upon. Conclusions based on these later data should be of some real value. Hence it has seemed worth while to collect and analyze the more recent literature although it is at present somewhat limited. It is to be hoped that now that the newer methods of diagnosis have come into more general use that the attention of the profession may be directed to this subject and that many of the points which are now doubtful may be cleared up.

ABORTION IN TYPHOID.—Klautsch found that abortion occurred in about half the cases of typhoid and that the fetus was usually born dead. Sacquin found 199 abortions in 310 cases, or 64 per cent. Étienne, combining the statistics of Liebermeister, Zuelzer, Kaminsky, Baratte, Güsseron, Griesinger, Bourgeois, Brieger, Murchison, Goldstammer, Duguyet, Martinet and Siderey, found a percentage of abortion of 70. It is probable that many of the same series of cases are included in these different

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estimates. Various causes have been advanced for this frequency of abortion. Among them are: (1) the high temperature; (2) the accumulation of toxins in the maternal blood; (3) the death of the fetus. It is probable that there is no common cause but that the etiology varies in different cases, any one of the above causes being amply sufficient, either alone or in combination, to produce abortion. Most writers agree, however, that the death of the fetus is the most common cause. This may result from the high temperature, the passage of toxins through the placenta or intrauterine typhoid, the last being probably the most common.

Experimentally Frascani found that the intravenous injection of bullion cultures of typhoid bacilli into pregnant rabbits and guinea-pigs always resulted in abortion. Moreover, abortion was a common result in the experiments of many other observers with the bacillus of typhoid.

FETAL TYPHOID.—In considering the question of intrauterine typhoid infection it is necessary in the first place to throw out all of the cases described before the discovery of the typhoid bacillus and all the conclusions drawn from them. Analysis of these cases shows that the very great majority of them were certainly not typhoid and in none of them is the evidence convincing. Moreover, some of those which are supported by bacteriological examinations are open to criticism as they were studied before the differences between the typhoid bacillus and the colon bacillus were as well recognized as they are at present. A considerable number of cases, however, have been sufficiently studied to be worthy of analysis and to form the basis for certain conclusions. Further investigation, however, may show that certain modifications of these conclusions are necessary.

Giglio*—Miscarriage in sixth week of typhoid of three and a half months' fetus. Numerous hemorrhages in placenta. Microscopically typhoid bacilli in intervillous spaces.

Fetus macroscopically and microscopically normal. Cultures from spleen, liver, intestines and blood of fetus showed typhoid bacilli.

Frascani—Miscarriage in fourth week of eight months, macerated fetus. Numerous placental hemorrhages. Maternal

* Cases which are to a certain extent doubtful.

splenic blood (obtained with syringe), showed typhoid bacilli in cultures.

Blood from the fetal organs gave pure cultures of typhoid bacilli.

Freund and Levy—Abortion at six months in fourth week of typhoid. Delivery conducted under strict aseptic precautions. Placenta showed evidences of an old endometritis but none of any recent, acute process. Cultures from placenta showed typhoid bacilli. Cultures from surface of placenta sterile.

Child died in fifteen minutes. Bacteriological examination begun five minutes later. There was slight hyperplasia of the spleen, which appeared a little softer than normal. The intestinal mucosa was normal. There was no ulceration of Peyer's patches. Cultures from the splenic pulp and the heart's blood showed the bacillus of Eberth. Cultures from the vernix caseosa were sterile.

Étienne—Abortion at fifth month on twenty-ninth day of disease. No placental lesion. Cultures from placental blood showed typhoid bacilli.

All the fetal organs were perfectly healthy. Spleen not enlarged. Intestines normal. Cultures from splenic and hepatic pulp and heart's blood showed many typhoid bacilli.

Eberth*—Abortion of four months' fetus at end of third week. No changes in placenta. Typhoid bacilli were found in the intervillous spaces.

Fetus was born dead in unbroken membranes. No changes in fetal organs. Cultures of typhoid bacilli were obtained from the heart's blood, lungs and spleen.

Hildebrandt—Miscarriage at end of second week of seven months' dead-born fetus. No note as to condition of placenta. A few typhoid bacilli were found in the placental spaces.

The spleen was possibly a little enlarged. The mesenteric glands were not enlarged. There were a few prominent solitary follicles in the lower ileum but they contained no bacilli. Typhoid bacilli were found in smears from the spleen, liver, mesenteric glands and blood; in sections of the spleen and kidneys; and in cultures from the spleen, liver, mesenteric glands and blood.

* Cases which are to a certain extent doubtful.

Fordyce—Delivery at fifth month in sixth week of typhoid during a relapse. No note as to condition of placenta. Sections of placenta and umbilical cord showed no bacilli.

Fetus died during delivery. Very careful autopsy. Everything normal except for a small amount of serous fluid in the peritoneal cavity. This fluid gave an almost immediate positive Widal reaction. Sections of the liver, spleen and kidney showed no bacilli. Cultures from the kidney and spleen showed typhoid bacilli answering all tests, including the serum reaction. Cultures from the intestinal contents and heart's blood were sterile. The heart's blood, however, gave a positive serum reaction.

Ernst—Miscarriage at eight months on eleventh day. No note as to placenta.

Fetus lived ninety-three hours. It showed no symptoms of typhoid. It was not nursed by its own mother. It had icterus and died suddenly. The intestinal tract was normal. Typhoid bacilli were found in sections of the spleen, muscles, heart-muscle, and blood-vessels of the brain and femur. Cultures were obtained from the spleen and heart's blood.

Janiszewski—Miscarriage at eight and a half months on twentieth day. No note as to placenta.

Infant died on fifth day. The spleen was normal. There were superficial hemorrhages in the kidneys. There was bronchopneumonia. The other organs, including the intestines, were normal. The spleen, kidneys, mesenteric glands and lungs showed many typhoid bacilli microscopically. They were also obtained in cultures from these organs and from a piece of intestine near the ileo-cecal valve.

Neuhauss*—Miscarriage of a four months, dead-born fetus on fourth day of convalescence after a relapse. No note as to placenta.

Autopsy immediately after birth. The spleen was not enlarged and the intestines showed neither ulcers nor swollen Peyer's patches. Cultures of typhoid bacilli were obtained from the spleen, kidneys and lungs. The liver was sterile.

Legry—Abortion at seven months on fourth day of relapse. No note as to placenta.

The child was born alive and died after four days in an

* Cases which are to a certain extent doubtful.

incubator. The liver of the fetus showed the same lesions as did that of the mother. A culture of the typhoid bacillus was obtained from the fetal liver.

Reher*—Abortion of six months, dead-born fetus on nineteenth day. The placenta was not examined.

The spleen and mesenteric glands were not enlarged. The intestines were normal. No bacilli were seen in smears and sections of the liver and spleen. Cultures were obtained from these organs.

These cases prove without question that the typhoid bacillus can pass from the mother to the fetus through the placenta. This fact has also been demonstrated experimentally. Chantemesse and Widal* inoculated two pregnant guinea-pigs with typhoid bacilli. One died twenty-four hours later and typhoid bacilli were found in the amniotic fluid; the other aborted after forty-eight hours and recovered. The livers and spleens of the two feti contained typhoid bacilli. Frascani injected bouillon cultures of typhoid bacilli intravenously into pregnant rabbits and guinea-pigs. Abortion always followed. The bacilli were almost invariably found in the fetal organs. Remlinger obtained pure cultures of typhoid bacilli from the heart's blood, spleen and liver of a rabbit which died three days after birth of a mother injected with typhoid bacilli. The organs macroscopically showed nothing abnormal.

There are several cases on record, moreover, which show that other bacteria than the typhoid bacillus can pass through the placenta in the course of typhoid.

Balp—A woman with typhoid, proved by autopsy four days after delivery, miscarried in the fifth week of a six months fetus. The blood of the placenta and of the fetal spleen showed typhoid bacilli and the staphylococcus pyogenes aureus.

Dürck—A woman with typhoid was delivered of a living child on the twenty-fourth day. The child died in nine hours. There was marked swelling of the liver and numerous hemorrhages beneath its capsule. The spleen was enlarged and congested, and typhoid bacilli and staphylococci were found in sections. The other organs were normal. Cultures from the liver and spleen showed typhoid bacilli and the staphylococcus pyogenes albus.

* Cases which are to a certain extent doubtful.

Fraenkel u. Kiderlen—Abortion at five months in third week. The placenta contained numerous petechial hemorrhages. No bacteria were found microscopically or in smears from the placenta. Cultures from the placental blood were sterile.

The fetus died without breathing. The organs were macroscopically normal. There were no bacilli in sections of the liver and spleen. Smears from the spleen and heart's blood showed no bacteria. Cultures from the heart's blood were sterile. Those from the spleen showed the staphylococcus pyogenes albus and flavus.

While there is no doubt that bacteria can pass from the mother to the fetus through the placenta, there is some doubt whether they can pass through the normal placenta. The experiments of Birch-Hirschfeld, Mossa and Malvoz seem to show that they cannot. Moreover, in Frascani's experiments with typhoid bacilli the placenta always showed numerous hemorrhages. The typhoid bacilli do not always traverse the abnormal placenta, however, as is shown by a case of Frascani's, in which a woman miscarried in the fourth week of a six months fetus. The placenta showed numerous hemorrhages, and typhoid bacilli were grown from it. The fetal organs were sterile. In two of the cases just reported placental hemorrhages were noted; in three it is expressly noted that the placenta was normal; in the others the condition of the placenta was not noted. It is very possible, however, that even when the placenta is macroscopically normal it may contain many microscopic lesions amply sufficient for the passage of bacteria. It does not seem impossible, nevertheless, that the bacteria which are undoubtedly present in the intervillous spaces should pass into the tufts independent of pathological lesions.

Nine of the twelve cases of uncomplicated typhoid infection were born dead or died at birth. Two others lived four days and one five days. None of them showed any special symptoms, but simply did not thrive and died. In the absence of the symptoms of any other disease, and with the bacteriological evidence of typhoid infection, it seems reasonable to attribute their death to this cause. It is possible, however, that prematurity may have played a part in their early death. It is evident, therefore, that the fetus most often dies in utero as the result of the typhoid infection. If it is born alive, it succumbs rapidly to an acute cachexia without special characteristics.

For the sake of completeness it may be well to refer here to two other possible cases of intrauterine infection with typhoid. These cases must be considered as somewhat doubtful, as no bacteriological examinations were made in either.

Oakey*—A woman with typhoid was delivered of a child at about full term. It was feverish at birth, and died in ten days.

Chambrelent et St. Phillippe*—Miscarriage at eight months. The infant did not do well from the start. It was feeble, had a large liver with jaundice and developed bronchopneumonia; presumably it died. It was not nursed and was taken from the mother immediately. The infant's blood and the serum from a blister gave a very marked positive Widal reaction. The day on which the reaction was obtained is not given.

In 10 of the cases of uncomplicated typhoid infection the organs were carefully examined macroscopically, and often microscopically as well. In 2 the spleen was slightly enlarged, and in one of these it was slightly soft. In 1 there were a few prominent follicles in the lower ileum but they did not contain bacilli. In 1 the kidneys showed superficial hemorrhages. In 1 other case in which the liver only was examined it showed microscopic changes identical with those found in the mother's liver. In 1 of the cases of mixed infection there was marked swelling of the liver and numerous hemorrhages beneath its capsule. The spleen was also enlarged and congested. These were the only pathological changes found in all the cases. It is evident, therefore, that the lesions of the intestines and mesenteric glands so characteristic of typhoid in extrauterine life do not occur in intrauterine typhoid. These organs are almost invariably normal. The liver and spleen are sometimes enlarged, however, and hemorrhages may take place into various organs.

The explanation of these differences in the pathology of extrauterine and intrauterine typhoid is not difficult if we consider the difference in the method of infection in the two cases. In the one instance the bacilli enter through the mouth, localize themselves in the intestine and show but little tendency to generalize themselves through the blood; in the other they enter the circulation directly through the umbilical vein and are generalized from the start. In one there is a local infection followed

* Cases which are to a certain extent doubtful.

by a general, in the other a general from the beginning. One is an enteritis followed by a septicemia, the other a septicemia from the first. Hence the lesions of intrauterine typhoid infection are general rather than local. The recently reported cases of adult typhoid without intestinal lesions and of severe and even fatal cases of typhoid with very slight intestinal symptoms are of interest in this connection. The results of the bacteriological examinations in the reported cases are important as giving corroborative evidence of the general septicemic nature of the infection in the fetus. Unfortunately cultures were not made from all the organs in every case. Typhoid bacilli were found in the spleen in every instance and in the heart's blood in all but one. They were found in the liver in 6 cases, in the kidney in 4, in the lungs in 3, in the mesenteric glands in 2 and in the intestines in 2.

An additional reason for the absence of the characteristic intestinal lesions is found in the fact that the intestine is not functioning at this period of life. The experiments of Netter and Levy show that in intrauterine pneumococcus infection pulmonary lesions do not develop when the lungs have not functionated. A pneumococcus septicemia results instead. If the lung functionates after birth pneumonia may develop. Mamoinski, moreover, found that the spleen of a fetus whose blood contained an abundance of the spirochete of relapsing fever did not show any characteristic changes.

The septicemic nature of the infection accounts for the extreme mortality in intrauterine typhoid. This mortality may, however, be more apparent than real, as it is possible that a certain number of the infants which are born alive and well after typhoid fever in the mother may have had the disease in utero. A positive Widal reaction has been found in the blood of several infants born under such conditions. Unfortunately, however, this cannot be accepted as proof of intrauterine typhoid as the agglutinating power might have been transmitted from the mother through the placenta, the fetus not having the disease. A case of Étienne's, nevertheless, does seem to suggest that the fetus may survive an intrauterine infection.

Étienne—A woman, five months pregnant, died on the fifteenth day. She did not miscarry. The fetus died as the result of her death. All the fetal organs were normal and cultures from its heart's blood, liver and spleen were sterile. The

fetus' heart's blood gave a positive Widal reaction in a dilution of 1.200 while that of the mother reacted only in a dilution of 1.150. He concludes, and it seems justly, that as the agglutinating power of the fetal blood was greater than that of its mother it did not pass from the mother to the fetus through the placenta, but was produced by the fetus itself. This may have been as the result of a previous intrauterine infection or in response to toxic absorption through the placenta. The absence of typhoid bacilli in the organs is consistent with either explanation. The latter seems the more probable, however.

This case seems to be the only one which in any way goes to show that recovery from intrauterine typhoid ever occurs.

Although there is little or no evidence to prove that recovery from intrauterine typhoid takes place there are many cases on record which prove that infection of the fetus is not a necessary result of typhoid in the mother.

Frascani—Miscarriage at sixth month in fourth week. Placenta showed numerous hemorrhages and gave a pure culture of typhoid bacilli.

Fetus died in twenty hours. The organs were sterile.

Charrier et Apert—Miscarriage at three months on twenty-first day. The fetal organs showed nothing abnormal. Cultures from the liver and spleen were sterile. Serum from the pericardium, peritoneum and brain and blood from the heart gave a negative serum reaction.

Osler—Death in typhoid at end of fifth month of pregnancy.

Flexner found the fetal blood and tissues sterile.

Étienne—Death on fifteenth day when four and a half months pregnant. Placenta normal.

Fetal organs all macroscopically normal. Cultures from heart's blood, liver, spleen and meconium sterile. Heart's blood gave a negative serum reaction.

Fraenkel u. Simmonds—Miscarriage at four months in second week. Placenta normal. Cultures from placenta sterile.

Cultures from fetal spleen sterile.

Miscarriage at five months in third week. Placenta normal.

Cultures from fetal spleen sterile.

Darling—Abortion at seven months on twenty-first day.

Infant lived two days. Autopsy showed nothing abnormal. Cultures from spleen sterile. Blood from heart gave a negative Widal test.

Wilson—Abortion in fifth month on twelfth day.

Fetal blood gave a negative Widal reaction.

Ker—Blood of a fetus, aborted by a patient with typhoid, gave a negative serum test.

Griffith—Refers to a case of Pepper's in which the full-term child of a woman with typhoid failed to show the Widal reaction.

Morse—Labor at or near term on tenth day.

Child well at birth and did well. Widal test negative on eleventh day.

CONCLUSIONS.—The following conclusions regarding fetal typhoid seem justified:

1. The typhoid bacillus can traverse the abnormal, and possibly the normal, placenta from mother to fetus. Other organisms may also pass in the same way.

2. Infection of the fetus results. Because of the direct entrance of the bacilli into the circulation intrauterine typhoid is from the first a general septicemia. For this reason, and possibly also because the intestines are not functioning, the classical lesions of intrauterine typhoid are wanting.

3. The fetus usually dies in utero or at birth as the result of the typhoid infection.

4. It may be born alive but feeble and suffering from the infection. If so, death occurs in a few days without definite symptoms.

5. It is possible that the fetus may pass through the infection in utero and be born alive and well. There is, however, no proof that this happens.

6. Infection does not always occur. The pregnant woman does not necessarily transmit the disease to her child.

INFANTILE TYPHOID.—The impression has prevailed for a long time that typhoid fever is very unusual under two years. There seems no obvious reason, however, why the infant should be less susceptible to typhoid infection than the adult. The exposure during the first year when the infant is usually fed on breast milk or some cooked food is undoubtedly less than in adult life. In the second year, however, when it is fed largely on raw milk, it should be greater. Nevertheless, the statistics bearing on this point apparently show that the disease is very uncommon at this age. Hölscher in 2000 autopsies in typhoid fever found only 2 under two years; 1 of two months and 1 of

nine months. Northrup in 2000 autopsies upon children under two years of age found no case showing the lesions of typhoid fever. Holt has never seen a case in a child under two years. Henoch reports 331 cases under fourteen of which only 9 were under two. Montmollin reports 2 cases under two of 295 under fifteen and Ollivier 3 under two of 611 under fifteen. Filatow saw no cases as young as two among 106 under thirteen. Bergquist saw only 1 under two in 100 cases in children and Steffen 2 under a year in 148 in children. Gassicourt, of 85 cases in children, found 3 under two; Roth, 4 under two of 82 under fifteen; and Archambault, 2 under two of 165 under fourteen. There are numerous other series of the same import scattered through literature. Noyes gives a very complete list of them up to 1895. He reported 3 cases under two in the Montclair epidemic of 1894. More recently Northrup reported 4 cases under two in the Stamford epidemic of 406 cases in 1895. In the epidemic in Tunis in 1899, reported by Sbrana, 72, or 75 per cent. of the cases were in children. The youngest was sixteen months; most were between three and eight years. Roemheld in 1898 reported 117 cases in children, of which 7 were under two years. Three of them died.

There can be but two interpretations of these figures: either typhoid fever is very uncommon in the first two years of life, or it is not recognized when it occurs. If it is not recognized when it occurs it must be because the disease at this age does not resemble the type seen in older children and adults, and hence is mistaken for some other condition. In order to determine, if possible, if it might be mistaken for the ordinary gastrointestinal disturbances of infancy, Thayer and myself examined the blood of 50 such cases for the serum reaction during the summer of 1898. A positive reaction was obtained in but 1 case, and in this instance the agglutinating substance was probably transmitted from the mother. This series is too small, of course, to warrant any very definite conclusions. As far as it goes, however, it confirms the impression of the infrequency of infantile typhoid. This method of investigation should, I think, be continued in large series of cases and seems to offer, especially in times of epidemic, the best prospect for determining both the frequency and character of infantile typhoid. Routine bacteriological examinations in large numbers of autopsies would also aid greatly in solving the problem.

It is very possible, and even probable, that the proportion of cases of infantile typhoid is even smaller than would appear from the series reported. None of them were confirmed by bacteriological or serum tests. Many of them rest on the findings at autopsy. It is well-known now, however, that many of the gastrointestinal infections in infancy cause pathological changes which macroscopically cannot be distinguished from those occurring in typhoid fever. Therefore, none of these figures can be accepted without considerable allowances for error.

Stowell, who is one of the strongest exponents of the frequency of typhoid fever in infancy, in 1895, collected from literature 55 cases under two. Twenty of the 55, or 36 per cent., died. The diagnosis in the cases which recovered and in the fatal cases without autopsies seems in many cases very doubtful and even improbable. In the autopsied cases it usually rested on enlarged or ulcerated Peyer's patches and splenic tumor. Northrup has shown conclusively, however, that lesions precisely similar to those of typhoid occur very frequently in many of the intestinal diseases of infancy. Diagnoses based on such lesions without bacteriological examinations cannot, therefore, be accepted as accurate. No bacteriological examinations were made in any case. Hence they are just as likely not to have been typhoid as to have been. Some were certainly not typhoid. Bednar's case in an infant of five days, for example, first reported in 1858, has been included. This was undoubtedly not typhoid but septic infection from the umbilicus. The diagnosis of typhoid seems probable, however, in 28 of the 55 cases, because of typhoid in the family, definite exposure or the presence of a roseola. Stowell concludes from his study of these cases that the "disease is not more rare in infancy than is explained by lack of exposure," and that "the types and varieties do not differ materially from those of adults." He thinks that the "mortality is high because the extremes of life are feeble." As the diagnosis is doubtful in so many of the cases, and in no case is proved by either bacteriological or serum tests, it does not seem justifiable to draw conclusions from them as such conclusions must necessarily be unreliable and often misleading. Neither does it seem justifiable to advance them as proofs of the frequency of infantile typhoid.

Since 1895, however, a number of cases have been reported which are undoubtedly typhoid, many of them being proved either by bacteriological examination or by the serum reaction. Unfortunately they are as yet too few in number to warrant any very definite conclusions either as to the course of the disease or as to its prognosis. Such evidence as they do offer is, however, of far greater value than that afforded by the greater number of imperfectly reported and doubtful cases of earlier years.

Jacobi reported a case in 1898 in which the mother had typhoid when the child was born. The disease was diagnosed as typhoid on the ninth day. A few spots appeared on the sixteenth day. It died the same day. The autopsy showed Peyer's patches swollen and rather soft but not ulcerated. The spleen was large and soft. Although there is no record of any bacteriological or serum tests there can be little doubt as to the correctness of the diagnosis. It seems hardly right, however, to classify this case among those of infantile typhoid as it is impossible to exclude an intrauterine infection. If this were possible it is by far the youngest case on record.

The youngest authentic case of extrauterine infection is, I think, that of Gerhardt, reported in 1877.

Gerhardt—It was born at eight months of a woman sick eight days with typhoid. It was not nursed by its mother but lived in the same room with her. It was healthy at birth and remained so until it was twenty-five days old. It had a typical fever curve, diarrhea, rose spots and enlargement of the spleen. The disease lasted twelve days and ended in recovery.

Among the more recent reported cases the following may, I think, be accepted although they are not supported by either bacteriological or serum tests.

Taylor—Eight months old; distention; diarrhea; rose spots; spleen not noted; duration, fifteen days; recovery.

Griffith—Seven months old; distention; diarrhea; roseola; spleen not enlarged; duration, fourteen days; death from weakness during convalescence.

O'Malley—Twenty-one months old; typhoid in family; mother gave serum reaction; abdomen tender and tympanitic; rose spots; spleen not felt; duration, twenty-three days; recovery.

Northrup—Two years; slept and played in bed with mother with typhoid; hebetude; rose spots; enlarged spleen; no data as to outcome.

Northrup—Thirteen months old; Stamford milk epidemic; typhoidal condition; abdomen normal; constipation; roseola; spleen palpable; duration, thirteen days; recovery.

Northrup—Sixteen months old; Stamford milk epidemic; diarrhea; roseola; no further notes; recovery.

Northrup—Twenty-two months old; Stamford milk epidemic; typhoidal condition; distention; diarrhea; roseola; spleen enlarged; duration, fifteen days; recovery.

Northrup—Twenty-two months old; Stamford milk epidemic; diarrhea; roseola; spleen palpable; death early from bronchopneumonia.

Autopsy showed swelling of Peyer's patches in lowest portion of ileum; swelling of solitary follicles of small and large intestines; marked swelling of the mesenteric lymph nodes; moderate enlargement of the spleen. Northrup calls attention to the fact that these changes were not as marked as in many of the common intestinal diseases.

Roemheld—Two years old; house epidemic; slight distention; diarrhea; roseola; spleen not palpable; duration, twenty-four days; death.

Autopsy showed enteritis but no ulceration or swelling of the intestinal lymph apparatus. Diphtheritic membrane in the rectum; spleen and mesenteric glands slightly enlarged.

The following cases were undoubtedly typhoid as shown by the presence of the Widal reaction or by the demonstration of typhoid bacilli in the organs:

Morse—Thirteen months old; fed on milk; mother had typhoid; condition not typhoidal; no distention; slight diarrhea; roseola; spleen easily palpable, two fingers' breadth below costal border; duration, three weeks; recovery; positive serum reaction on three occasions.

Long Island College Hospital—Eighteen months old; mother and sister had typhoid; condition slightly typhoidal; no note as to distention or diarrhea; roseola; spleen enlarged; duration, twenty days; recovery; positive Widal reaction.

Griffith—Nineteen months old; diarrhea; roseola; spleen much enlarged; duration, four weeks; recovery; positive serum reaction.

Griffith—Nineteen months; diarrhea; roseola; spleen much enlarged; duration not determined because of complicating diphtheria; recovery; positive Widal reaction.

Griffith—Three months old; diarrhea; no note as to roseola; spleen enlarged; duration, fourteen days; death; positive Widal reaction from heart's blood.

Autopsy.—Throughout the ileum, and especially in its lower portion, Peyer's patches were thickened, reddened and somewhat depressed. Microscopical examination showed infiltration and ulceration. The spleen was usually large, soft and dark and the mesenteric glands enlarged.

Cassoute—Two months old; no fever. "Of all the usual signs of typhoid the only one present was persistent diarrhea." Death; positive serum reaction in half an hour.

Autopsy showed fourteen infiltrated Peyer's patches, several of which had begun to ulcerate.

Roemheld—Seven months old; house epidemic; abdomen slightly distended; slight diarrhea; no roseola; no demonstrable enlargement of spleen; duration, eighteen days; death.

Autopsy.—Intestines normal, except for slight injection of lowest Peyer's patches; spleen enlarged; mesenteric glands slightly enlarged; typhoid bacilli found in spleen.

Nachod—Twenty-two months old; house epidemic; diarrhea; spleen enlarged; no note as to distention or roseola; signs of bronchopneumonia; duration, not determined; death, from bronchopneumonia; pronounced positive Widal reaction.

Autopsy.—Intestines normal; Peyer's patches not swollen, and showed no loss of substance; the spleen was much enlarged; mesenteric glands somewhat enlarged and rather hard; cultures from the intestinal contents showed no typhoid bacilli; pneumonia in right lung.

He considers that the patient was recovered from the typhoid and died as the result of sequelæ. On this ground he explains the absence of the bacilli in the intestine and the presence of the Widal reaction.

Bryant—Twenty-one months old; house epidemic; distention; diarrhea; vomiting; no note as to roseola; spleen enlarged; duration, twenty-two days; death; positive Widal reaction in 1-20 dilution in two minutes.

Autopsy.—Intestines normal; spleen slightly enlarged; mesenteric glands large and soft; cultures of typhoid bacilli, which answered all tests, were obtained from the mesenteric glands.

An analysis of these eighteen cases shows that distention of

the abdomen, usually slight, was present in 7 of 10, or 70 per cent., and diarrhea, also usually slight, in 14 of 15, or 93 per cent. A roseola was noted in 13 of 15, or 87 per cent., and the spleen was demonstrably enlarged in 11 of 16, or 69 per cent. The average duration in 7 cases which recovered was a little more than nineteen days, and in 5 which died a little more than eighteen days. Eight of 17 died, giving a mortality of 47 per cent.

Autopsies were made in 7 cases. The mesenteric glands and spleen were enlarged in all cases in which their condition was noted, *i.e.*, each in six. The intestines were normal in 2 cases and normal except for slight injection of the lowest Peyer's patches in another. In 1 there was enteritis, but no ulceration or swelling of the intestinal lymph apparatus; in another the Peyer's patches were thickened, reddened and somewhat depressed throughout the ileum, especially in the lower portion; in another there was swelling of the Peyer's patches in the lowest portion of the ileum and swelling of the solitary follicles of the large and small intestines; in another fourteen infiltrated Peyer's patches were found, some of which had begun to ulcerate.

It appears from the analysis of these cases, therefore, that the symptoms of typhoid in infancy are essentially the same as in adults, but that the course is shorter and the mortality much larger. These conclusions must be accepted as essentially correct if the cases on which they are based are representative. It is very possible, however, that they comprise only the severe and fatal cases and that many other milder ones have been passed unrecognized. If so, they can but be misleading. As already suggested, the most feasible way of determining this point is by serum tests in large numbers of cases.

The absence or slight degree of the intestinal changes in the fatal cases is most striking and very different from those seen in adults. The enlargement of the mesenteric glands was also moderate, although the spleen was almost always considerably enlarged. In sharp contrast to the mildness of the pathological changes is the picture of a severe general infection during life and the great mortality. In this it resembles the conditions met with in fetal typhoid far more than those in adult typhoid. These conditions in fetal typhoid are due to the fact that in the fetus the disease is a blood infection. This is also true, although to a less extent, of infantile typhoid and explains in the same

way the disproportion between the pathological changes and the severity and fatality of the disease.

CONCLUSIONS.—Except for the lessened exposure in the first year through food there seems no obvious reason why typhoid should be less frequent in infancy than in later life. Nevertheless, judging from the small number of cases reported, it is less frequent. It may really be less frequent or only apparently so because the disease is not recognized, being mistaken for other conditions. Bacteriological examinations in large series of autopsies on infants and the use of the Widal serum test in large numbers of sick babies seem to offer the best means for determining both the frequency and the character of the disease at this age.

The accuracy of the diagnosis in many of the earlier reported cases must be regarded as very doubtful, and hence no satisfactory conclusions can be drawn from them. Analysis of the more recent and certain cases seems to show that the symptoms of infantile typhoid are essentially the same as in adults, but that the course is shorter and the mortality greater. These conclusions may be inaccurate, however, as it is possible that they are based on the severe cases alone, the milder cases having escaped notice. The pathological changes in the intestines are, as a rule, insignificant. The contrast between them and the severity of the general symptoms is striking. The probable explanation is that in the infant as in the fetus, but to a less degree, the disease is a general rather than a local infection.

THE SERUM REACTION.

IN INFANTILE TYPHOID.—The cases of Griffith (3), Nachod, Bryant, Cassoute and Morse show that the Widal reaction occurs in infantile as in adult typhoid.

IN FETAL TYPHOID.—There are no data available regarding the presence or absence of the serum reaction in fetal typhoid. When the reaction is present in the feti of typhoid mothers, it is impossible to determine whether the agglutinating principle originated in the fetus as the result of typhoid infection or was merely transmitted through the placenta. When the reaction is absent it is impossible to know whether or not the fetus had the disease in utero. The probability is that it did not.

TRANSMISSION THROUGH THE PLACENTA.—A positive serum reaction has been found in children, born alive and well, of

women with typhoid or convalescent from typhoid. Although it is impossible to state positively that this reaction may not have been the result of intrauterine infection, yet the fact that the children were born alive and remained healthy, taken in connection with what is known of the prognosis of intrauterine typhoid, renders it very improbable.

Wilson—A woman in the third week of typhoid gave birth to a puny child and died two days later. The infant's blood gave a characteristic reaction two weeks later.

Morse—Miscarriage at nearly full term on the twelfth day of typhoid. The infant was born alive and well, and remained well. It did not nurse. Its blood was first tested when it was two weeks old and then gave an immediately positive reaction.

Achard—A woman had typhoid during the sixth month of pregnancy. Confinement occurred at full term. The blood of both mother and child gave a positive reaction on the third day. The power of the infant's blood was 1-200. The colostrum was also positive.

Morse—A woman had a "slow fever" in 1888; well since that time. Child born in December, 1897; nursed for three months; diarrhea in July, 1898; no other symptoms of typhoid; blood of both mother and child gave a positive serum reaction in July, 1898. Neither gave a reaction in December, 1899. While not certain, it seems probable that the reaction in the child was derived from the mother.

Mossé et Daunic—Woman had typhoid in October; left hospital well early in December; during convalescence her blood and colostrum showed the serum reaction. Normal labor January 5th; the placenta was normal and bacteriologic examinations were negative. The placental blood gave an immediately positive reaction.

The child was small but well. Its blood gave a positive reaction, but not so immediate as did the mother's. Both the milk and the infant's blood gave a positive reaction twenty-four days later. The milk then dried up. The infant's blood gave a positive but slower reaction nine days later. The continuation of the reaction in the child may very possibly have been partially due to transmission through the milk.

Mossé et Frenkel—Abortion of five months' fetus on twelfth day of convalescence from typhoid. Placenta microscopically normal. No bacilli seen.

The fetus was expelled in its envelopes. The organs were macroscopically normal. No cultures were made.

The mother's blood gave a positive reaction in a dilution of 1-500; the placental in one of 1-100, and the fetal in one of 1-40 or 60.

In a considerable number of feti and children of mothers with typhoid the serum reaction has, however, been absent. It was wanting in the cases of Charrier et Apert, Darling, Étienne, Griffith, Ker, Morse and Wilson, already reported.

The presence of the agglutinating property in the fetal blood may be explained in two ways: the agglutinating principle either passes unchanged through the placenta from the mother to the fetus or is produced by the fetus in response to toxins which pass from the mother through the placenta. Étienne's case is the only one tending to support the latter explanation.

Étienne—A woman died on the fifteenth day of typhoid without miscarrying. The five months' fetus died as the result of its mother's death. All the fetal organs were normal and cultures from the heart's blood, liver and spleen were sterile. There was evidently, therefore, no typhoid infection. The mother's heart's blood gave a positive reaction in a dilution of 1-150, that of the fetus in a dilution of 1-200.

As the agglutinating power in the fetal blood was greater than that in the maternal blood he concludes that it did not pass from the mother through the placenta, but was produced by the fetus itself. As there was no typhoid infection it must have been in response to the invasion of typhoid toxins.

In the cases of Mossé et Daunic and Mossé et Frenkel, however, the agglutinating power was less in the fetal than in the maternal blood. Remlinger's experiments with animals showed the same comparative weakness in the young. He kept the agglutinating power of a rabbit at 1-400 throughout her pregnancy. Three of her young showed an agglutinating power, varying from 1-30 to 1-40; the other showed none. A guinea-pig, whose agglutinating power was kept at 1-200 during pregnancy, had four young whose also varied from 1-30 to 1-40. This comparative feebleness of the agglutinating property in the fetus is advanced as an argument in favor of the transmission of the property through the placenta, on the ground that the placenta while acting as a filter does so imperfectly and allows a part to pass. There seems no reason, however, why this argu-

ment should not apply equally well to the passage of toxins. The comparative weakness of the agglutinating property may then be explained on the supposition that the smaller amount of toxins in the fetus naturally results in the production of a smaller amount of agglutinating power. The experiments of Widal at Sicard with mice, proving the transmissibility of the agglutinating property through the milk make it probable that this property may also be transmitted through the placenta. They gave a nursing mouse daily injections of the agglutinating serum of an ass. The blood of the little ones gave a positive reaction in three days. This seems to be the strongest argument in favor of the transmission of the agglutinating principle through the placenta. While, therefore, it seems probable that the agglutinating property in the fetal blood is largely due to the passage of the property through the placenta it is also possible that a part of it may be formed by the fetus itself in response to toxins also passing through the placenta.

Granting that the agglutinating principle may be transmitted through the placenta there must be some reason why it is not transmitted without impairment and why it is often not transmitted at all. A simple explanation is that the normal placenta, acting as a filter, prevents the passage of the agglutinating principle while the normal does not. Nothing abnormal was found, however, in the two placentaë which were examined. It is evident, therefore, that while the normal placenta acts as a filter it is under certain conditions not a perfect one. Theoretically the conditions on which the permeability of the placenta depend are the strength of the agglutinating principle in the maternal blood and the length of time during which the placenta is exposed to it. Unfortunately the data in man are as yet insufficient to either prove or disprove these theories. Remlinger's experiments, however, seem to bear out the latter. He immunized two female guinea-pigs and then bred them to normal males. No further immunizing injections were given. The young did not show the agglutinating reaction. The young of the rabbit and a guinea-pig which were immunized throughout their pregnancy did show a well-marked reaction. The apparent dependence of the transmission of the agglutinating power through the milk on the strength of this power in the mother's blood, is evidence corroborative of the former theory. While these theories as to the reasons why the agglu-

tinating power is transmitted in one case and not in another are as yet evidently unproved they seem probable, however, and certainly offer a satisfactory explanation for the clinical facts. Interesting in this connection are Remlinger's experiments showing that the agglutinating power cannot be transmitted by the male and that the second litter of an immunized animal does not show the agglutinating reaction although the first did.

TRANSMISSION THROUGH THE MILK.—The data with regard to the transmission of the agglutinating power to the infant through the milk are rather meagre but interesting and instructive.

Landouzy et Griffon—An infant of three months in perfect health nursed its mother into the second week of a typhoid of medium severity. Both mother and child showed a positive serum reaction. The degree was not noted in either case. As the child went into the country the duration of the reaction in the child was not determined.

Courmont et Cade—A woman nursed her two months' old baby for two weeks after she was taken sick with typhoid. Three days after the child was taken from the breast its blood gave a positive reaction in a dilution of 1-10. The mother's blood gave a reaction in a dilution of 1-200 and her milk in a dilution of 1-30. Five days later the infant's blood failed to give a reaction.

Castaigne—An infant was nursed until the end of the second week of typhoid and was then taken from the breast. On that day its agglutinating power was 1-40; the next day it was 1-20 and the next 1-10. Five days later the power had disappeared. It was then put back on the breast. The next day its agglutinating power was 1-10 and the next 1-50.

These cases show that the agglutinating power may be transmitted through the milk. Judging from them it may appear in the child's blood in twenty-four hours after beginning to take the milk and persist at least three days, but not as long as seven days, after ceasing to take the milk. The experiments of Widal et Sicard with mice also prove that the agglutinating power may be transmitted through the milk. They inoculated a nursing mouse daily with the agglutinating serum of an ass. The blood of the little mice gave a positive reaction in three days. While they were nursing their agglutinating

power was 1-250. Three days after the cessation of nursing it was 1-100 and eight days later it was gone.

It is evident from the cases of Castaigne and Courmont et Cade, as well as from the experiments of Widal et Sicard, that the duration of the power of agglutination transmitted through the milk is only transitory, lasting but a few days after the cessation of nursing. It is evident, also, from the disappearance after the cessation of nursing, the return after taking the milk again and the appearance in the blood of mice nursing a mother inoculated only with the agglutinating substance and not with the bacilli or their toxins that the agglutinating power in the nursing must be a purely passive one.

While these cases and experiments show that the agglutinating power may be transmitted through the milk there are several other cases and experiments which show that it is not always transmitted.

Thiercelin et Lenoble—A woman nursed a child, seven months old, during the first ten days of typhoid. Eight days later her milk gave a positive reaction; blood was negative, even in a dilution of 1-3. This case proves little, however, as the milk may have been negative on the tenth day when the child stopped nursing, as seems probable from the feebleness of the reaction on the eighteenth day. Moreover, a positive reaction could not have been expected in the infant's blood eight days after the cessation of nursing.

Achard et Bensaude—A woman entered the hospital on the fifteenth day of typhoid, still nursing a two months' old infant. The infant was well and remained so. It apparently continued to nurse. The milk gave a positive reaction in a dilution of 1-10. The infant's blood gave a negative reaction. It is not stated on what day these tests were made.

Charrin—The agglutinating power of the mother's blood was 1-50 and that of her milk 1-30. The blood of the nursing child gave no reaction.

Castaigne—This woman's milk never had an agglutinating power greater than 1-20. The blood-serum of the infant gave a negative reaction.

Remlinger—An immunized and a normal rabbit threw their young at the same time. The power of the immunized rabbit's blood was 1-300 and that of her milk 1-40. None of the young showed the agglutinating power. The young of each then

nursed the other. Those on the milk of the immunized mother did not develop a reaction. The same experiment was repeated with guinea-pigs with the same result.

Widal et Sicard—Two guinea-pigs were inoculated with typhoid cultures and one received many injections of serum. The milk was only feebly agglutinative, varying from 1-10 to 1-30. None of the young ever showed any reaction.

A cat was inoculated with typhoid cultures until the agglutinating power of its blood reached 1-3000 and that of its milk 1-400. The blood of the nursing kittens showed no reaction. Another cat was given repeated injections of serum. The agglutinating power of the blood reached 1-1200 and that of the milk 1-150. The blood of the nursing kittens remained negative. Several kittens were fed for a month on goat's milk of an agglutinating power varying for 1-300 to 1-400. Their blood showed no reaction.

A boy drank a half liter of this goat's milk daily for three weeks, but his blood at no time gave any reaction.

The explanation of the fact that the agglutinating power is transmitted from the mother to the child through the milk in one case and not in another is not difficult when we consider that in passing from the maternal blood to the infant's blood the agglutinating substance must overcome two barriers—the filter of the mammary gland and the epithelium of the infant's digestive tract.

The action of the mammary gland is shown by the difference in the agglutinating power of the maternal blood and of the milk, that of the milk always being less than that of the blood. For example, in Courmont et Cade's case 1-200 in the blood and 1-30 in the milk; in Charrin's, 1-50 in the blood and 1-30 in the milk; in Remlinger's rabbits and guinea-pigs, 1-300 and 1-200 in the blood and 1-40 in the milk; in Widal et Sicard's cats 1-3000 and 1-1200 in the blood and 1-400 and 1-150 in the milk. In a general way, therefore, the intensity of the reaction in the milk varies directly with the intensity of that in the blood.

The action of the epithelium of the digestive tract is shown by the difference in the agglutinating power of the milk and of the nursing's blood, that of the blood always being less than that of the milk. For example, in Courmont et Cade's case, 1-30 in the milk and 1-10 in the blood. The action of the epithelium is also shown by the variation in the intensity of the

reaction in Widal et Sicard's mice which nursed the same mother for twenty days. At this time the agglutinating power of the blood was 1-100 in one mouse, 1-200 in another and 1-250 in two.

It is evident, therefore, that in passing from the maternal to the infantile blood a certain amount of the agglutinating power is lost. Part is arrested in traversing the mammary gland, part in traversing the epithelium of the digestive tract. It is evident that for the reaction to appear in the infant's blood the power of agglutination in the mother's blood must be more than can be arrested at these two barriers. The intensity of the agglutinating power in the mother is, therefore, the chief factor in the transmission of the agglutinating power to the infant. The arresting power of the mammary gland seems to be fairly constant; that of the digestive tract, however, appears to vary widely both in the same and in different species. The agglutinating power in Widal et Sicard's mice, fed on the same milk, varied from 1-100 to 1-250, and while it passed in mice it did not in kittens. The cause of these variations is not evident. Hence the second most important factor in the transmission of the agglutinating power lies in some unknown condition of the individual digestive tract.

CONCLUSIONS.—The serum reaction occurs in infantile as in adult typhoid. There are no data as to whether or not it occurs in fetal typhoid.

The agglutinating power may or may not be present in the blood of infants born of women with typhoid. If present, it is transmitted from the mother to the child through the placenta. It is possible, however, that it may be formed in the child in response to toxins transmitted through the placenta. The agglutinating principle can pass through the normal placenta. Part of it, however, is arrested in the passage. Whether or not it is transmitted seems to depend on the strength of the agglutinating power in the maternal blood and the length of time during which the placenta is exposed to it.

It may be transmitted to the nursling through the milk. It may appear in the infant's blood in less than twenty-four hours. It lasts but a few days after the cessation of nursing. It is always weaker in the milk than in the maternal blood and always weaker in the infant's blood than in the milk. This weakening of the agglutinating power is due to the obstruction to its pass-

age in the mammary gland and in the nursling's digestive tract. The chief factor governing transmission is the intensity of the power in the maternal blood. A subordinate but important factor is some unknown condition in the digestive tract. If the power in the maternal blood is weak and the obstacles great it may not be transmitted.

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The Prognosis in Typhoid Fever is more favorable in children than in adults. Extreme tympanites, especially if accompanied by vomiting, is a bad omen, as is also the early onset of nervous symptoms or great depression. Bleeding from the bowel, if small in quantity, is not necessarily serious, but if repeated frequently, or very copious, indicates serious ulceration and imperfect repair.—*Williams.*

PULMONARY TUBERCULOSIS IN INFANTS AND CHILDREN. *

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The voluminous accumulated literature of tuberculosis shows a paucity pertaining to the especial subject of pulmonary tuberculosis in infants and children. We may attribute this to the fact that it only is within a comparatively recent period that its differential study has been made.

The more thorough utilization of the available *post-mortem* material in the metropolitan hospitals for children and institutions having their custodial care, tends to reveal that it is not a rarity among children, or at least among such children as find their way into these institutions.

It is to be supposed that in private practice there exists conditions far more favorable as causative factors, than in the modern equipped hospitals and other institutions of to-day. The selection of cases would, then, be the only modifying contributing factor to be considered when we attempt to arrive at the real prevalence of the disease.

However, we have sufficient data to warrant us in saying that it is not a rare affection among children and one demanding painstaking study to thwart its ravages.

I became interested in the study of tubercular affections of childhood while resident physician to the Pennsylvania Institution for Feeble-Minded Children and was especially impressed with pulmonary tuberculosis, as the first death occurring among children under my care was one of this affection. There is nothing, perhaps, in all of our later experience in medicine which stimulates inquiry into a special subject like the first death occurring in the young physician's practice.

* Read before the Mississippi Valley Medical Association at Asheville, N. C., October 10, 1900.

It is not fair to consider tuberculosis as found among the feeble-minded children as the clinical criterion of the disease because of the obtuse symptomatology so manifest among these degenerates and because of their heritage, viz.: a debilitated and enfeebled constitution, whereby a lessened resistance gives opportunity for greater susceptibility to infection.

We can, however, find some food for reflection both as to etiology of the disease tuberculosis, and of idiocy and imbecility by careful observation of this unfortunate class of children.

ETIOLOGY.—Heredity is of etiological importance in the study of tuberculosis but it has lost its prestige as compared to its former standing. In the light of modern scientific inquiry infection has supplanted direct heredity as the etiological factor *par excellence* in tuberculosis. It is not disputed but that direct heredity is responsible for a limited number of cases.

Just here, let me quote from the excellent work by Levy and Klemperer, "Clinical Bacteriology," p. 268. "Cases of direct inheritance are known both in human pathology and in veterinary medicine, but their number is extremely small in comparison with the wide distribution of the disease."*

A cow belonging to the herd of the State Hospital for the Insane, at Jacksonville, gave birth to a well-formed calf which lived but twenty-four hours. I was interested in knowing what was the cause of death and therefore made a *post-mortem* examination of the calf. I found clinical evidences of tubercular infection involving the entire glandular system, with involvement of the lung. Later the mother of the calf came under the tuberculin test, and while to all appearances she was a healthy cow, yet the test showed unmistakable evidence of tuberculosis. She was killed and the *post-mortem* manifestations were exhibited by the State veterinarians in evidence.

Jacobi has reported finding the bacilli in a seven months' fetus, while Baumgarten, Landouzy and others have promulgated the belief, that in such cases the bacilli are transmitted during fetal life, but the germ does not proliferate until by lessened resistance the opportunity is presented.

Along this line of reasoning, perhaps there are more cases of direct hereditary transmission than we ordinarily would sup-

* Personally, I have noted direct transmission in a calf (previously reported in discussion before Illinois State Medical Society, *Illinois Medical Journal*, September, 1900, p. 173.)

pose. This same possibility exists in other infectious diseases as well.*

Gradawohl's case was that of a mother dying of epidemic cerebrospinal meningitis, confirmed by bacteriological examination and a seven months' fetus, removed *post-mortem*, showed the same pathological involvement of the meninges as the mother. The pathogenesis of the microorganisms removed from maternal and fetal meninges was confirmed by experimental methods.

This case clearly proves as Ballantyne (*American Year Book*, 1899, p. 488) has said, that the fetus is liable to the same disease as the mother. This infection probably taking place through the blood stream.

However, the great majority of cases of pulmonary tuberculosis in infants and children are due to infection. This is proven by the fact that the disease does not appear until the child is at least three months old and according to the studies of Comby (*Progressive Medicine*, March, 1900, p. 269), there is a steady increase from 9 per cent. during the first year to 38 per cent. during the second year in tuberculous cases. This argues, he says, against hereditary origin and in favor of acquired infection.

The infant and young child certainly are favorably exposed to infection. Living in the home with a tuberculous mother, where through the mother's milk, the mother's kiss or breathing the bacteria-laden atmosphere, the avenues of infection are certainly grave and sufficient.

Again, the carelessness displayed by the average tuberculous patient in the home, in handling the sputum, gives many opportunities for the creeping infant, playing on the floor, to come in contact with the tubercle bacilli.

One of the cases coming under my observation in private practice, was an acquired case in an infant nine months old. To all appearances the infant was well developed, appeared normal until the ninth month of age, when its illness began.

The mother was tuberculous and temporarily was in Colo-

* Gradawohl, of St. Louis, (*Philadelphia Medical Journal*, September 2, 1899, p. 445), in reporting a case of "Intrauterine Epidemic Cerebrospinal Meningitis," says this case "brings to mind the fact that the physiology and pathology of antenatal life are becoming more clearly understood by reason of the very fact that we are meeting with cases of transmission of disease in utero more frequently than ever before."

rado Springs under the care of Dr. Solly. She did not nurse her child, but had the little one constantly with her. After a brief stay in Colorado, mother and infant returned home; the infant contracting a cold *en route*, from which resulted bronchopneumonia.

I saw the case in consultation and later assumed charge of the patient. After some days' observation I made the diagnosis of bronchopneumonia tuberculosis. The case ran the usual course of *phthisis florida*, dying four months after inception of the disease. I am sure this was a case of tuberculosis by infection; the route of infection being probably the respiratory tract as the diet of the infant was exclusively modified sterilized milk. This question of the route of infection is an important one and one which has been carefully studied by enthusiastic observers: Northrup¹, Holt², Bovaird³, Carr⁴, and others have reported results based on autopsies, all of which tend to show as Northrup expresses it, "that in the vast majority of tuberculosis in children the seat of the primary infection is the lymph nodes clustered about the bifurcation of the trachea and the roots of the lungs." The infection then takes place more frequently through the respiratory tract, the primary lesion being either the bronchial lymph nodes or the lungs.

Carr writes regarding the starting point of tuberculosis in children—"that the lesion is usually the glands, the liability being at its maximum during infancy and early childhood, and rapidly decreasing later in childhood; that caseous glands, especially internal ones, may remain quiescent for an indefinite period."

It is not infrequent to find on autopsy infection of the bronchial lymph nodes, without suspicion as to this infection existing. I believe it was Osler who found fully 25 per cent., or more, of cases coming to autopsy showing evidences of old tuberculosis, the patient dying of other disease.

Tuberculosis evidently starts more frequently in the thorax, than elsewhere. The infection is not necessarily through the respiratory tract, for the infection may come from the intestines and find its way through the lymphatics to the lungs.

1. *Progressive Medicine*, March, 1899, p. 151; *Sajou's Annual*, 1892, Vol. i., p. A. 20. 2. *Medical News*, December 12, 1898; *Text-Book Diseases of Children*, p. 1020. 3. *Medical Record*, March 18, 1899, p. 404. 4. *London Lancet*, May 12, 1894.

Bovaird in reporting 60 cases in addition to those of Northrup, says, "that in no case were tubercular lesions of the intestines or mesenteric glands discovered without accompanying tubercular lesion of the lungs and bronchial lymph nodes." Other observers confirm the respiratory tract as the most frequent route of infection and the more frequent thoracic over abdominal tuberculosis.

Pulmonary tuberculosis in infants is undoubtedly referable to previous pulmonary infections such as whooping-cough, influenza and the catarrhal disturbances incidental to measles, scarlatina, etc., which pave the way for tubercular infection by debilitating the patient.

Pulmonary affections are responsible for a great mortality among the feeble-minded—fully 50 per cent. die of these diseases. Fish¹, Brown², Wilmarth³. I take it that if a more thorough clinical bacteriological study could be made of these cases, we would find more pulmonary tuberculosis existing among these children than now reported.

The intestinal tract is a route for infection in tuberculosis but not as marked as the respiratory. The catarrhal diseases of the intestines, viz.: enterocolitis, gastroenterites make portals for tubercular invasion, hence, the importance of regulating these diseases and of the double importance of supervision of the diet of the infant.

Milk undoubtedly is a source of infection, and while not having as vulnerable point of vantage in the intestine of a healthy infant, yet, let disease or fatigue lessen the resistance of the child, and infection is possible.*

The Illinois State Board of Health some years ago instituted inquiry in this field and more recently the Board of Live Stock Commissioners of Illinois has carried these investigations into more practical application among the dairymen of Illinois. The work of Gehrman and Evans under direction of this Board demonstrates conclusively that the milk from cows showing the tuberculin reaction should not be used, neither should butter made from such milk be used.

1. Proceedings, Association Superintendent Feeble-Minded Institutions, p. 218.
2. Same, p. 335. 3. Personal Letter.

* Kanthack and Sladen (*Progressive Medicine*, March, 1900, p. 270), in their careful experimental studies of milk as a source of tubercular infection concluded that we must regard the milk supply as a grave danger, especially to hand-fed children, young children, delicate children, and to those suffering from acute disease.

Again, the flesh from tuberculous animals is unfit for food, for as stated in the Special Report on Diseases of Cattle, United States Department of Agriculture, 1896, p. 407: "Experiments have shown that the flesh of tuberculous animals contains tubercle bacilli," and especially so when there is a generalized tuberculosis.

It is highly important, therefore, that cattle to be used as food supply should be subjected to inspection. Cattle which are afflicted should be killed and their carcasses cremated, for if buried, however deeply, they may be dug up by dogs, and under no circumstances should dogs, cats, swine or other animals be allowed to feed on tuberculous meat. Especially is this important regarding house pets, such as dogs and cats, because coming into the house as the playmate of the infant or child, they bring unwarranted exposure to the little one.

Tuberculosis as found in the monkey is the same as found in man, as I have repeatedly seen proven in the laboratory. The tuberculosis of the fowl is closely related to that of man, and later may be proven to be the same. We all recognize these possible etiological factors and their importance should impress upon us the prophylaxis of which we will speak later.

DIAGNOSIS.—We spoke of the prevalence of pulmonary affections among the feeble-minded children, and this suggests that with the perfection of our methods of clinical diagnosis we will find, I dare say, that pulmonary tuberculosis plays a prominent rôle in this rate of mortality. With the clinical fact that tuberculosis easily engrafts itself upon the primary disorder, ever before us, we can understand how insidious may be its invasion and how it may escape detection altogether.

Bovaird says, tuberculosis, long latent in the bronchial glands, may be roused and disseminated under the influence of the outbreak of an intercurrent disease, the symptoms of the latter entirely masking the presence of the tuberculosis.

I have seen this illustrated in my own experience, where the physical signs usual in cases found in the adult, were wanting. I now have a case under observation showing obscurely the clinical phenomena of pulmonary tuberculosis. The patient, an infant, unduly emaciated without errors of digestion and progressively declining. Fever has been a feature for several weeks.

This case emphasizes Bovaird's statement regarding the early evidences of the invasion of tuberculosis, based on the records of cases that there are only two evidences of early invasion of tuberculosis, viz.:* (1) progressive emaciation not explained by any other disease; (2) continued elevation of temperature similarly conditioned.

This group of symptoms is also noticed in cases of malnutrition and the group in itself signifies simply a vice of absorption. Other contributing symptoms oftentimes prominently conspicuous are mentioned by Bertherand, viz.: the enlargement of the abdomen; the constricted thorax; the pale delicate skin; cold extremities; night sweats; variable curve of bodily weight, etc.

A positive diagnosis is difficult to make without the aid of clinical bacteriology, for I am sure all of us have in our studies of malnutrition in infants and degenerate children met with this entire grouping of symptoms and yet no evidence of further decline and not infrequently, recovery.

I have under observation in my service at the Illinois Institution for the Education of the Blind, about 150 children, many of whom have by reason of their "shut in lives," conspicuous, *apparent* cachexia, indicative of malnutrition, disease, etc., and yet, the general health of these children as compared to their fellow unfortunates, the deaf, is far above the latter class. There is no real cachexia; it is *apparent*, hence, we cannot always depend on the objective signs in diseases of children.

Comby classifies pulmonary tuberculosis of children into three clinical varieties: 1. Apyrexial tuberculosis, characterized by emaciation with vomiting and diarrhea. 2. Febrile tuberculosis, acute miliary tuberculosis, simulating typhoid fever and meningitis; the temperature has a high range and there is much prostration. 3. Pulmonary phthisis, in which the disease runs a course similar to that found in the adult. In older children, Comby adds two more varieties, viz.: 4. Tuberculosis of a bronchopneumonic form, simulating bronchopneumonia closely. 5. Pleural and peritoneal tuberculosis, sometimes curable.

* Bertherand (*Gazette des Hopitaux*, quoted editorially PEDIATRICS, July 15, 1900,) in speaking of pulmonary tuberculosis in young infants says: "Tubercular babies are taciturn and easily examined. Emaciation is often marked; absence of fat causes the face to be wrinkled; the facial bones are prominent, the eyes are deep in their sockets, the mouth seems enlarged. The sutures are not united and the fontanelles persist."

My experience has been that the bronchopneumonic form is found in infants as well. One of my most pronounced cases, confirmed by laboratory inquiry, was in an infant seven months old. The disease commencing as bronchopneumonia to which was later engrafted, tuberculosis.

Osler says the differential diagnosis between acute bronchopneumonic tuberculosis and non-tubercular bronchopneumonia is difficult to make and can only be determined by finding the bacillus tuberculosis.

I have noticed in children over two years of age that we have more of the physical symptoms viz.: disseminated râles, noisy breathing and other signs usually observed in bronchopneumonia—together with sweating, chills, hectic fever, signs of breaking down lung tissue, etc.

The most common type of tuberculosis in children is, according to Northrup and Bovaird series of cases, acute miliary tuberculosis, and the course of the disease is apt to be confused with chronic bronchopneumonia or enterocolitis. Differentiation, according to these authorities, is difficult as the clinical evidences are insufficient.

COMPLICATIONS.—In infants we find comparatively few complications—but after two years of age complications commence to appear. Of these tubercular meningitis is the most conspicuous and severe. This disease may be found where no clinical evidence of the tuberculosis exists, but by *post-mortem* we find lesions of the lymph glands and apices of both lungs. Sometimes chronic pulmonary tuberculosis may have existed for some time.

Tubercular meningitis is most common during the period of childhood and is usually secondary to infection elsewhere. Osler says, "other organs are usually involved particularly the lungs, the bronchial glands or the bones."

I have performed autopsies where the tubercles were multiple and clustered along the longitudinal fissure. Again, they were noted attached to the meninges of the cerebellum, and along the sulci at the base of cerebrum, attached to the pia mater. The irregularities of the disease make it of clinical interest and while it is invariably fatal, yet, we learn some wholesome truths regarding prophylaxis in its study.

Other complications of great clinical interest are the tuberculous diseases of the joints and bones. These affections are,

however, essentially surgical and as such need surgical care. There are other complications of importance, of these empyema is a prominent one. Ashby and Wright state that "The relation between empyema and tuberculosis is interesting and important." The question as to whether chronic empyema is essentially tubercular or apt to become tubercular is one not yet settled. Some writers, among them Barlow and Parker, state they have met with cases where they believed a tuberculosis was secondary to a chronic empyema. This is one of the questions to which modern pathology may contribute more light.

PROGNOSIS.—The prognosis in pulmonary tuberculosis in infants is grave; in fact we may say the disease is invariably fatal. In the bronchopneumonic form the course may be rapid and usually is of a few weeks' duration. As the child grows older less grave becomes the prognosis, except in the bronchopneumonic form which I believe is invariably fatal. In the chronic tuberculosis of the lungs of childhood, much can be done to ameliorate and even to cure the disease.

It is possible for a child to survive the invasion of the tubercular bacilli, as Osler says "Infection does not necessarily mean the establishment of a progressive and fatal disease. I have known of two boys, brothers, afflicted with pulmonary tuberculosis to find relief in Colorado.

The *post-mortem* evidences even in feeble-minded children with a lowered or degenerate vitality, show that lesions of the lungs may heal. This lesson teaches us not to put an unfavorable prognosis upon every case, but endeavor at once when the diagnosis is made to institute proper treatment.

TREATMENT.—Like Holmes, we will say that to properly treat tuberculosis in the child, we must begin with his grandfather. In other words, a good heritage is the best treatment of tuberculosis as it is prophylaxis in its perfection.

But it is not given to every infant to have such an invulnerable physical reserve and even when bequeathed with this priceless heritage, other disease or accident may lessen resistance and open the portals for the entrance of the omnipresent tubercular bacillus.

The infant of tuberculous parentage enters life with a handicap destined to affect its entire career. The tuberculous mother has given of her substance to the limit of her powers, to make her child a fit subject for the conflicts with the ills and woes to

which the human flesh is heir, but she cannot give absolute immunity.

Hence, the importance of proper care of the infant from the date of its birth. The nursling should at once become the subject for artificial feeding for we know the danger of the mother suckling her child. Neither should the infant live in the room with its mother; its sleeping apartments should and must be apart from those of its mother.

The suggestions made in this important part of the hygiene of the infant must be emphatic. Again, the maternal caresses instinctively given the helpless babe, must be controlled to the extent that kissing should be prohibited. The babe should live in the open air as much as possible; have a large airy nursery and have thrown about it surroundings conducive to good living. The diet we know must be supervised; the milk must be under inspection and should be sterilized. Milk is the diet and should be used to the exclusion of other food.

I am aware that the insistence of these conditions is many times impossible, but in the line of duty, we proclaim their necessity. The infant can, under well regulated hygienic surroundings, mature into a child capable of withstanding the ordinary opportunities for infection.

Of these, colds and catarrhal affections of the nasopharynx need care and supervision. Adenoids should be removed. As the child develops a wholesome dietary must be provided and an out-of-door life encouraged.

To the child afflicted with the disease, the open air treatment is the best, the most suitable and most satisfactory. It may be necessary to change the residence locality, or remove from the home, town or city, entirely; then comes the necessary suggestion as to change of climate. Whether it is to be a permanent removal to a more suitable climate or the temporary change to some sanitarium with the proper climate and good hygiene will depend upon a number of factors.

The sanitarium treatment is the one distinctive advance in modern treatment; here rigid discipline, suitable dietary and a well regulated hygiene, contribute to the wholesale benefit of the patient. The open air treatment at home under strict medical supervision is as near as we can come in the average case, but the climatic treatment is to be recommended even if the advantages of the sanitarium are not to be had.

The symptomatic treatment of pulmonary tuberculosis as it occurs in infants and children is practically the same as in the adult. Osler (*Maryland Medical Monthly*, January, 1900, p. 10) says: "The stomach controls the situation in pulmonary tuberculosis. In a long series of cases the patients who do well are those who can take plenty of food. Fever," he says, "causes the lack of appetite and feeble digestion. Each case must be dealt with separately, but as large a quantity of food as possible should be taken."

I have adopted Osler's suggestion regarding the use of raw eggs, even in children. One of my cases is now taking several every day and is gaining in weight. I believe the weight of the patient is the best guide for us in determining the benefits of treatment. Children are easier to keep in one dietary routine than adults. I have had a number of such patients who acquired a liking for cod-liver oil—the pure Norwegian oil and really looked with pleasure for the time when it was to be taken. Knopf (*XX Century Practice*, Vol. xx., p. 231), says: "Children and young people often develop tuberculosis for no other reason than that they are naturally bad eaters." Hence, the necessity of regulating the quality and quantity of food taken and the time of taking it. It is impossible to lay down absolute rules but we can see that wholesome food, plenty of it and proper intervals, be given.

In regard to the use of drugs, I would say that I have used comparatively few. Creosote and creosotal I have used with, I believe, value to the patient. The creosote is given in milk in small doses, three or four times a day. Creosotal is given the same way. The bowels are to be kept open and to this end some simple laxative may be taken. I use cascara preparations with children. A general tonic is given and the simple phosphoric acid, in a vehicle of elixir of pepsin, improves the appetite and assists digestion. For the cough which may become persistent and troublesome I have used paregoric, heroin $\frac{1}{2}$ gr., or codein $\frac{1}{10}$ gr. These may be combined with some suitable cough mixture such as "the Brown Mixture," or one of the more refined preparations containing glycerin, etc. Fever is met with baths or some of the coal tar preparations administered with caution.

A REPORT OF ONE HUNDRED AND EIGHTY-SEVEN
CASES OF MEASLES WITH REFERENCE TO
KOPLIK'S SPOTS AND THEIR VALUE
IN DIAGNOSIS.

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In his original article (ARCHIVES OF PEDIATRICS, December 18, 1896), Koplik established the fact that "infinitesimally minute bluish-white spots on a reddish punctate area and on a more diffusely reddened background in advanced cases" appear on the buccal and labial mucous membranes during the invasion of measles. In the past three years much attention has been paid by special workers to this new feature in diagnosis, so that now it may be said that some unanimity of opinion in regard to the value of the spots exists.

In March (service of Dr. Freeman), April and May (service of Dr. Holt), of the present year, an epidemic of measles universally spread about the buildings of the New York Foundling Hospital offered exceptional advantages in the way of early and systematic examination of the mouths of children for Koplik's spots and enabled the writer to furnish data concerning this much discussed diagnostic sign from the complete records of one hundred and eighty-seven cases.

The presentation of any new statistical facts based upon clinical observation would seem to be of value at this time, when no effort is spared in the prevention of disease.

It will not be necessary in this paper to discuss the prodromal symptoms of measles in general, but to state briefly the results of careful association with Koplik's spots, the object being to furnish some information in regard to the following points concerning them:

1. Whether they appear *regularly* on the buccal and labial mucous membranes.
2. Whether they appear *before* any other strong diagnostic feature of the disease.
3. To estimate their value in ordinary diagnosis to the general practitioner, and what is more important in the prevention of

widespread infection among aggregations of children in institutions, asylums, etc.

The following figures represent the results of the observations made here:

Koplik's spots, positive,	169	cases.
“ “ negative,	8	“
“ “ doubtful,	10	“
Total,	- -	187 cases.

Thus it is seen that only 8 cases or 4.3 per cent. did not present any characteristic changes in the appearance of the buccal and labial mucous membranes, which are the only tissues which demonstrate the spots, although in 2 cases hyperemia was marked, in 2 others slight, while in the 4 remaining cases there was no departure from normal.

Poorly nourished children of the type known as marantic, those affected with rickets, or with the taint of hereditary or acquired syphilis, seem not to present the spots at all, or at least not so clearly as their more vigorous companions, while catarrhal symptoms, fever, skin eruptions, etc., may be presented classically and give accurate data for absolute diagnosis. In this class of cases it may confidently be expected that they will not demonstrate their reaction to the measles infection as well as other and sturdier children. A large proportion will show pale, dry mucous membranes and in these cases the diagnosis must depend upon some degree of pyrexia and a skin eruption with or without catarrhal symptoms.

While emphasizing these facts concerning poorly-nourished children, it is of importance to remember that a certain small percentage of healthy children do not show Koplik's spots at any stage of the disease; 2 of the 8 cases in this series, 1 a healthy nursing child five months old, the other a vigorous boy of three years, did not show the spots, although in each case the infection was particularly virulent.

A statement in detail, of the cases without the spots offers nothing different from the ordinary run of cases, but it may be mentioned in passing that of these 8 cases, 5 presented marked fever, prominent catarrhal symptoms and well-developed skin rashes, with bronchopneumonia or other complication later carrying them to a fatal issue.

The 10 *doubtful* cases include those admitted to the hospital at later stages of the disease and those who presented signs not admitting of diagnosis either positively or negatively.

With reference to the time of the appearance of the spots in relation to the skin eruption, the following testimony is offered:

Koplik's spots,	}	These three symptoms together (when cases were first observed) in							78 cases
Fever over 99° F.,									
Skin eruption.									
Koplik's spots 1 day before skin eruption	-	-	-	-	-	-	-	54	"
" " 2 days " " " "	-	-	-	-	-	-	-	25	"
" " 3 " " " " "	-	-	-	-	-	-	-	4	"
" " 4 " " " " "	-	-	-	-	-	-	-	3	"
" " 5 " " " " "	-	-	-	-	-	-	-	2	"
" " 1 day after " " "	-	-	-	-	-	-	-	2	"
" " No skin eruption	-	-	-	-	-	-	-	1	"

In ordinary private practice, the physician, as a rule, is not called upon to observe cases until something focal, such as rash or catarrhal symptoms presents. Seventy-eight children or 46 per cent. of our cases acted precisely in this manner, the skin rash being noticed first of all, and an examination determining the presence of spots and fever. But if, as seems most rational, these spots on the mucous membranes are the expression of nature's attempt to get rid of the poison, whatever it may be, we can but believe that their appearance in relation to the skin rash is merely an incident, depending entirely upon the virulence of the infection and the individual disposition of the child.

In regard to the value of Koplik's spots in aborting epidemics in institutions it may be interesting to note that in the fall of 1899 measles appeared in isolated cases at the Foundling Hospital at Spuyten Duyvil where, even under most rigid conditions of quarantine the disease spread universally throughout the institution and this occurred when the spots were recognized by competent observers as soon as they appeared.

A few months later when measles entered the New York Foundling Hospital, it was hoped that in the light of the previous experience the results would be more gratifying, but any attempted methods of restraint did not arrest its progress. Every ward and every nursery had its share of cases.

This epidemic had its origin in a child who was returned from a nurse to the hospital, suffering from enterocolitis on February 14th. One week later she developed fever, spots and

rash and was sent at once to the Willard Parker Hospital. On March 3d a child in the bed adjoining the one recently removed developed fever and spots and immediate quarantine was instituted on the top floor of the hospital.

New cases developed rapidly on every floor of the hospital proper and in the three nurseries in the building adjoining—eventually invading all parts of the institution.

It occurred in three instances in nurseries into which measles had presumably not entered that a single child presented fever and spots in the mouth, but no rash or catarrhal symptoms. Immediate removal of that child to quarantine was followed by systematic examination of all the children in that nursery for fever and spots, with negative results; still we expected the disease to travel through that particular nursery and subsequent events proved that our expectations were only too quickly realized. With these experiences we can but believe that when measles reaches the stage of Koplik's spots the exposure to other children has been great.

Sobel has stated that “with a history of slight malaise, even *without pyrexia* and catarrhal symptoms, the existence of these spots on the buccal mucous membranes stamps the disease as morbilli.”

Of our entire 187 cases not a single one presented Koplik's spots as the only evidence of the disease which was to follow. Other testimony, regularly presented, was a rise in temperature more than 99° F. We were unable to isolate a single case on the strength of the spots alone, because the two symptoms, fever and spots, traveled together invariably, and allowing that spots may occur without fever it is a matter of history that they have not been observed in this institution.

Recognizing the extreme service of Koplik's spots in measles when other symptoms sufficient for diagnosis are not present, regardless of what has been claimed for them and irrespective of popular fallacies relating to them, we have yet to know that any disease other than measles presents them, and their value in diagnosis should meet with the universal appreciation which their importance demands.

POISONING BY VAPO-CRESOLENE.*

BY S. S. ADAMS, M.D.,

Washington, D. C.

These cases are reported because vapo-cresolene is to be found in a great many houses in which there is a child with a cough. It is sometimes introduced and recommended by the physician. I have seen two cases of carbolic acid poisoning directly attributable to the inhalation of the fumes from a vapo-cresolene lamp. In one case I was called to see a patient who was said to be dying and the family and physician did not know what was the matter. I found the child, aged one year, in coma, and in a cold, clammy sweat. There was marked pulmonary edema. When I asked what had been done with carbolic acid, I was told that the child had been shut up for twenty-four hours in a small room inhaling the fumes from a vapo-cresolene lamp. I asked the mother: "How long has this child been passing black urine?" and she said it had passed black urine, but had passed no urine for twenty-four hours. The child was taken out in the open air, given water to drink and it recovered.

I was called to see an infant aged six months dying, it was said, from pneumonia. The child had stridulous respiration, mucous râles over both lungs, a cold, clammy sweat, and dilated pupils. The temperature was only a little over one hundred degrees in the rectum, and had been even lower. As I went out of the room I saw a vapo-cresolene lamp burning. Somebody had recommended using the vapo-cresolene lamp and the mother had put it beside the crib at bed-time. At twelve o'clock the child refused its food. At four o'clock the mother was awakened by a peculiar noise the child was making, and it was after this that I was called. This patient did not pass smoky urine. The child was taken into another room, and given plenty of water. The odor of carbolic acid was very

*Read before the American Pediatric Society, Washington, D. C., May 1, 2, 3, 1900.

perceptible. Usually physicians have attributed no harm to the vapo-cresolene lamp, but I ask for your experiences. Whether the pulmonary edema was due to the congestion of the kidneys or not I am unable to say. This second case also recovered. The pulse and temperature soon became normal and the physician in attendance then said he thought it was a case of "suffocative catarrh." But I do not think there is any doubt about the diagnosis of poisoning by vapo-cresolene.

I DUPONT CIRCLE.

Examinations of the Deaf and Dumb.—Otto Barnick reports (*Archiv. f. Ohrenheilkunde*. B. xlviii., H. 1 and 2) the results of a careful examination of 143 pupils of a deaf and dumb institution; 72 were boys, 71 girls. The ages ranged from eight to fifteen years. In 63.63 per cent. of the pupils the deafness was acquired; in 31.03 per cent. it was congenital. Of the 91 cases of acquired deafness, 15 were the result of traumatism, 2 of lightning, 8 of meningitis, 2 of typhoid fever, 1 of small-pox, 2 of scarlet fever and diphtheria, 9 of inflammation of the middle ear, 12 of suppuration of the middle ear without known cause, 6 after scarlet fever, 3 after measles, 3 after diphtheria, 2 after whooping-cough, 1 after pneumonia, and 24 from other causes. Examination with the otoscope showed a chronic middle-ear catarrh of pretty high degree in 22 cases; 17 had residua of chronic middle-ear suppuration; 9 had otorrhea and 11 had normal drums. Forty-three of the pupils had adenoids, 14 had hypertrophied tonsils, as many more hypertrophic rhinitis; 2 had ozena. Nearly one-third of the cases had partial or complete nasal obstruction; 58.74 per cent. of the deaf and dumb pupils had chronic middle-ear catarrh; 22 per cent. of the author's cases were totally deaf; 26 per cent. had weak tone perception, responding to loud noises, and middle and deep tones of the piano; 41 per cent. retained power to hear single words. Taking the 182 ear-organs examined, 30.20 per cent. were totally deaf, and 69.8 had more or less hearing power left. —*Journal of Eye, Ear and Throat Diseases*. Vol. v., No. 3.

Clinical Memoranda.

FATAL INTESTINAL HEMORRHAGE WITHOUT KNOWN CAUSE IN AN INFANT OF FIVE MONTHS.

BY MAURICE OSTHEIMER, M.D.,

First Assistant in Children's Dispensary, University of Pennsylvania, Philadelphia.

Joseph H., at his birth in the Maternity Pavilion of the University Hospital, weighed seven and a half pounds. His maternal history was good; in his father syphilis was suspected, but on neither side could hemophilia be found. He did not thrive during the first three weeks, his weight falling to five pounds and a half. Then his temperature rose to 101° F., with vomiting and diarrhea. Dr. J. P. Crozer Griffith, who was called to see him, placed him upon cream and water, after which he did well. His mother meanwhile died of sepsis. Upon a modified milk mixture of 1 per cent. fats, 6 per cent. sugar and $\frac{1}{2}$ per cent. proteids, his weight reached nine pounds.

At four and a half months, his temperature suddenly rose to 102° , and he was transferred to Dr. Griffith's ward. He was rather emaciated and very pale. His head was small and covered with furuncles, while his frontal bones, oddly depressed above, protruded below. On both sides, the temporal arteries were as tortuous and prominent as in an old man. The anterior fontanelle was wide open. His face looked old, his eyes were sunken, and the forehead always showed four parallel wrinkles. Examination of the thorax and abdomen was negative. Bowel movements were green, scanty in amount and occurred often. There were no enlarged lymph nodes and no skin eruption. He was given a modified mixture of $3\frac{1}{2}$ per cent. fats, 6 per cent. sugar and 1 per cent. proteids.

For three days his temperature rose in the afternoon, which was supposed to be due to the suppurating furuncles on his head. He took his nourishment poorly. Then he improved for two weeks, though he did not gain in weight. There was one blood-tinged bowel movement, with a slight diarrhea at

this time. Suddenly one morning there occurred a hemorrhage from the bowels of eight ounces of bright red blood, followed by collapse. He reacted to stimulation, but had another eight ounce hemorrhage two hours later. Eight hours after that, six ounces more of blood were passed—one hour before death. His pulse was 164; temperature, $102\frac{2}{3}^{\circ}$. He was a few days over five months old.

The autopsy showed evidence of anemia and marasmus. The stomach was normal. In the intestines there were no ulcers, although the colon appeared studded with small red, slightly elevated points, corresponding to the solitary follicles. The mucous membrane was slightly congested in places, but there existed no gross ulceration from which hemorrhage could have taken place. Both the spleen and the mesenteric lymph nodes were slightly enlarged. There were no signs of syphilis nor of tuberculosis.

In a search through the literature of the past decade I could find but 4 cases reported which were at all similar in character. For the majority of cases of melena occur during the first week of life, or they show varied forms of ulceration *post-mortem*. These occurred after the first month, and no cause for the hemorrhage was found. One was reported in Buenos Ayres¹ in a child of three who had four hemorrhages from the bowels without known cause, each of about 30 grams. She, however, recovered. Langerhans² speaks of a child of six weeks with a fissured fracture of the skull, who died from successive hemorrhages from the bowels. The autopsy revealed no intestinal lesions, but he calls attention to the intrameningeal hemorrhage as an etiological factor. Finally Baginsky³ mentions two boys of nineteen months and three years, in each of whom no lesions of any kind were found to account for the hemorrhage.

For the privilege of reporting this case I am indebted to Dr. Griffith, and my thanks are due Dr. Flexner for his autopsy notes.

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ARCHIVES OF PEDIATRICS.

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Edited by WALTER LESTER CARR, M.D.

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HEAD NODDING AND HEAD ROTATION.

Less than a hundred cases of this affection have been recorded in medical literature, and this degree of infrequency must cause the pediatricist to ask himself whether he is confronted with a new disease, or one which has hitherto been confounded with or included under the head of some other affection. Attempts to connect spasmus nutans with motor neuroses have been fruitless, with the one exception of nystagmus, with which disorder head nodding is frequently associated. From the motor neuroses the affection under consideration is strongly differentiated by its transitory and self-limited character. It is equally distinct from the so-called mimitic or bad-habit neuroses, which, like itself, are benign, and transitory.

The isolated position in neurology of head nodding is emphasized by the total absence of any neuropathic or heredi-

tary taint, and also by the entire independence of this affection as to conditions which produce or accompany epilepsy and idiocy.

Some element of nervous instability must, however, be present, and this element is supplied by rachitis; for numerous observers have insisted that head nodding is found to a preponderating extent in rickety infants, and we know that this disorder of nutrition is able to exert an unfavorable influence upon nerve tonus, as is illustrated by the association with rickets of laryngospasm, tetanoid contractures and convulsions.

Spasmus nutans occurs most frequently in city infants who inhabit dark tenements; and it develops at the period at which the infant is learning to co-ordinate the movements of its ocular muscles. But the underlying vice of constitution in all of these infants, whether living in dark rooms or exposed to the sun, is a lessened stability of the motor centres. This disease bears some analogy to an occupation neurosis, corresponding to an initial overstrain of certain structures, which later becomes corrected. There is no change in the fundus and the optic disc is always normal.

The obscurity which attends the study of this affection is unfortunately heightened by the specialization of medical practice and literature. The neurologist and pediatricist will each regard spasmus nutans from the standpoint of his own special branch of medicine, and as a result we are likely to have imperfectly studied cases. Joint reports, are, therefore, a desideratum whenever either specialist encounters a case of this malady. In this way it will be possible to study the various phenomena of the muscular movements and with the assistance of a competent ophthalmologist the histories of these cases will have a value that they do not now possess.

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Progressive Medicine. Volumes II.-III., 1900. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Vol. II., pp. 401, with 81 engravings; Vol. III., pp. 408, with 14 engravings. Philadelphia and New York: Lea Brothers & Co. Issued quarterly. Price \$10.00 per year.

These two volumes are as satisfactory as the first one of the series. The articles edited by Dr. A. Stengel, in Vol. II., dealing with the diseases of the blood, the diathetic and metabolic diseases and the diseases of the glandular and lymphatic system are of especial value and interest to students of diseases during the developmental period.

All the subjects are well collated and the literature of medical science has been thoroughly digested.

Transactions of the Royal Academy of Medicine in Ireland. Vol. XVII. Edited by John B. Story, M.B., F.R.C.S. Dublin: Fannin & Co., Ltd., 41 Grafton Street, 1899. Pp. xl., 683.

This large volume contains a great deal of valuable material although there are no papers contributed by specialists in the diseases of children.

A surgical history of interest is the report of "A Case of Chronic Intestinal Obstruction Treated by the Formation of Intestinal Fistula with Subsequent Excision of Cecum and Portion of Ileum in a Girl of Twelve Years," by John Lentaigne, F.R.C.S.

In a paper on tuberculosis in Ireland, Dr. Grimshaw states that the prevalence of tuberculosis among young children in that country is to be attributed to the use of milk of tuberculous cows. In Belfast and Dublin the death rate is very high.

Dr. Letters, in an article on the same subject, gives figures to show that the mortality rate for children in the cities is two and a half times as great as in the country.

The volume fixes a high standard of medical writing and is worthy of a better fate than falls usually to the lot of transactions.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Stated Meeting, October 11, 1900.

THOMAS S. SOUTHWORTH, M.D., CHAIRMAN.

A CASE OF PROGRESSIVE MUSCULAR DYSTROPHY.

DR. SARA WELT-KAKELS presented a boy six years and eleven months old, without a family history bearing on his case. The patient was the seventh of eight children, two of whom died in infancy: one, eight days old, of convulsions, the other, in its second year, of pulmonary disease; the remaining children were healthy and robust. He was born normally and was breast-fed during the first few months only; dentition began at the end of the first year. During dentition he was frequently subject to diarrhea; he began to walk when eighteen months old; at the end of the second year he began to talk; he had a slight attack of measles in his fourth year; since that time he was never sick, but was always pale looking and delicate; he was never able to

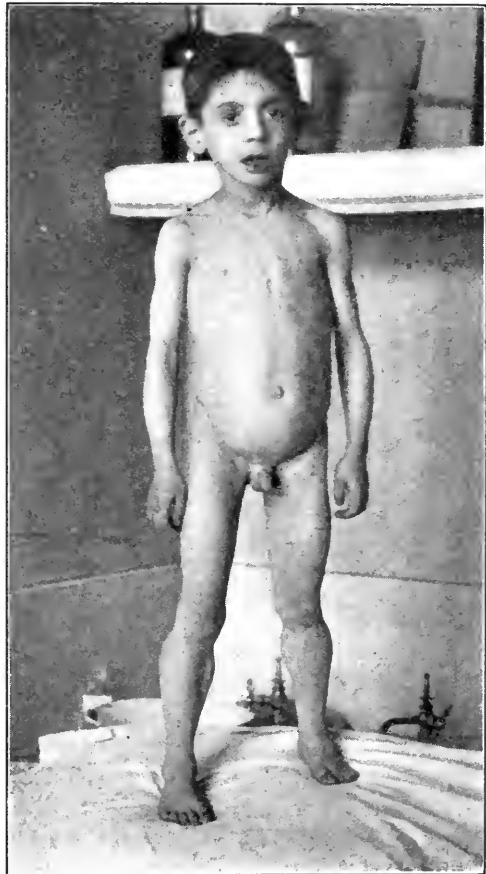


Fig. 1.—POSITION OF THE BOY WHEN STANDING.

jump and run like other children, but would easily stumble; during the last summer this weakness became more apparent, especially in climbing stairs. In the past two months an enlargement of the calves was noticed. In appearance he was pale and slightly rachitic. Viscera of thorax and abdomen normal. Urine contained no albumin or sugar. His intellect seemed to be rather defective; his speech slightly impaired; there were no disturbances of sensibility; sense of space, pressure and temperature normal; pain perception slightly impaired.

The lower extremities felt cold and had a mottled appearance; the patellar and Achilles tendon reflexes were diminished



Fig. II.—BOY RAISING HIMSELF FROM THE RECUMBENT POSITION.

on the right and nearly abolished on the left side. The electrical reaction of the muscles was quantitatively diminished; the muscles of the lower extremities responding to faradic stimulation with sluggish contractions only; no degeneration reaction; no fibrillary twitchings. The muscles of the trunk and the proximal muscles of the upper extremities were wasted but the muscles of the lower extremity, especially the sural muscles were markedly hypertrophied (see Fig. I.); they felt hard to the touch; the extensors and also the adductors participated in the hypertrophy; the gluteal muscles were atrophied. The largest circumference of the right calf measured 23 cm.; of the left,

22 $\frac{1}{4}$ cm.; the greatest circumference of the right thigh was 27 cm.; of the left, 26 $\frac{3}{4}$ cm.; the arm in its thickest portion was 13 cm. on the right and 14 cm. on the left; the gait was straddling, the trunk oscillating from side to side; there was a lordosis of the lumbar portion of the spine, which carried the abdomen forward, while the shoulders were carried back. In rising from the recumbent position there was the characteristic effort made in getting up on the hands and knees; then grasping the thighs with the hands he was enabled to get on his feet himself from the floor. (Fig. II.). The case was typical.

AN INTERESTING CASE OF MENINGITIS.

DR. DAVID BOVAIRD presented the *post-mortem* findings in the case of a child of four months who had presented before death chiefly the signs and symptoms of pneumonia. There had been an entire absence of cerebral symptoms up to twelve hours before death, yet the anterior three-fourths of the brain was found covered with a marked exudate.

CONCLUSIONS FORMED AFTER SIX YEARS' EXPERIENCE WITH THE ANTITOXIN TREATMENT OF DIPHTHERIA.

DR. HENRY F. KOESTER, of the New York Health Department, read a paper of this title. It was founded on 170 cases from private practice, about 3 per cent. of which were children. To secure the best results, the dose should never be less than 2,000 units of antitoxin, and in severe cases it should be 3,000, and should be repeated inside of twenty-four hours. It was the type of the disease and not the age of the patient which should be the guide to dosage. For a case of nasal diphtheria he would use 4,000 or 5,000 units, whereas in a case of so-called septic diphtheria he would not hesitate to make the initial dose as high as 6,000, and stand ready to repeat it within twenty-four hours. For the purpose of immunization he used 300 to 500 units, and after an experience with immunizing doses in 1,800 cases he felt much confidence in the power of antitoxin to protect against the disease. He strongly condemned the use of calomel sublimation in laryngeal diphtheria, believing that the irritation thus set up predisposed to pneumonia, and that the treatment was as hurtful as it was unnecessary at the present time. Urticarial eruptions and joint pains were the most common sequelæ of the administration of diphtheria antitoxin,

and the cause was probably to be found in the surcharging of the patient's blood with the hippuric acid and other excrementitious substances present in horse serum. The author's conclusions were: (1) Antitoxin is a positive cure for diphtheria when used early enough and in sufficiently large doses; (2) even when employed too late to produce its specific action it cannot, under any circumstances, be harmful, and (3) when used before the invasion of diphtheria, antitoxin possesses a positive immunizing power, which lasts about thirty days.

THE QUANTITY OF DIPHTHERIA ANTITOXIN REQUIRED IN THE TREATMENT OF DIPHTHERIA.

DR. WILLIAM H. PARK read a paper with this title. (See page 823, ARCHIVES OF PEDIATRICS, November.)

ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

DR. JOHN H. MCCOLLOM, resident physician at the Boston City Hospital, South Department, presented this paper. He advocated the use of enormous doses of antitoxin in very grave forms of diphtheria. Thus, in the case of a child desperately ill, admitted on the third day of the disease, 60,000 units of antitoxin had been given in doses of 4,000 units each. This patient had recovered, without paralysis, and the only unpleasant result was a somewhat troublesome urticaria. In another very severe case, occurring in a girl of four years, 48,000 units of antitoxin had been given before its characteristic effect had been manifest. This child had also recovered, without untoward symptoms, unless a trace of albumin in the urine for two days might be considered as such. The speaker made the very positive statement that he had yet to see a patient die of diphtheria to whom antitoxin had been given in the first twenty-four hours of the disease. On the other hand, he had seen so many apparently hopeless cases recover under these enormous doses of antitoxin that he was now firmly convinced that it was the duty of the physician to make use of them in appropriate cases. Since 1895 104 cases of diphtheria had developed among the physicians and nurses on duty at the South Department of the Boston City Hospital, yet not a single one of these cases had proved fatal; none had had paralysis, and the duration of the disease had been less than the average. These results he attributed to the early use of antitoxin in every case.

The record of urinary examinations in 633 cases of diphtheria showed that in 42.3 per cent. there had been no albumin, while in the others it had been present as "a slight trace," or in still smaller quantity. He did not consider the mere presence of albumin in the urine of diphtheria cases of much significance. In not one of the 71 autopsies had the condition of the kidney been such as to have materially contributed to the person's death. Paralysis had occurred in 15 per cent. of the cases treated with antitoxin. The result with the antitoxin treatment in mixed cases of diphtheria and scarlet fever had not been as good as in pure diphtheria, but it had been better than from any other mode of treatment. The author's conclusions were as follows: (1) The ratio of mortality of diphtheria per 10,000 of the living was very high in Boston prior to 1895; (2) this ratio has been very sensibly reduced since the introduction of diphtheria antitoxin; (3) the percentage of mortality in the South Department of the Boston City Hospital is lower than in any other of the hospitals that he had taken for comparison; (4) since the larger doses of antitoxin had been used there, there had been a decided diminution in the mortality in apparently moribund cases; (5) there had been no harmful effects from the use of the serum, and (6) to obtain the best results the antitoxin must be given at the earliest possible moment in the course of the disease.

DR. W. C. DEMING said that he had treated for the Health Department, 277 cases of diphtheria, and had used antitoxin for purposes of immunization in 479 cases. In ordinary cases, seen within the first four or five days, he recommended a dose of 2,000 units, though admitting that 1,000 units might accomplish the desired purposes in most instances. Where the disease was of a severe type, or involved the larynx, the initial dose should be 4,000 units. If improvement were not observed in twenty-four hours, one might be sure that the case had come under treatment too late, or else that some complication was present. For immunization purposes he used 200 units for infants, 300 or 400 units for older children, and 500 units in adults or in children who had been unusually exposed to the infection.

DR. L. K. NEFF said that it was his practice to use in laryngeal cases or in those of a specially severe type, 7,000 units for a child of ten years, and to give a second injection of

3,000 to 4,000 units within twenty-four hours if improvement did not occur.

DR. JOSEPH E. WINTERS commented with surprise on the large percentage of cases of clinical diphtheria that had developed among the hospital attendants at the Boston City Hospital. At the Willard Parker Hospital the mortality had been as high as 82 per cent. last July, the time when the large doses of antitoxin were in use. On the other hand, the lowest mortality had occurred in the period marked by the use of the smallest doses of antitoxin. On three separate occasions he had noted an increased mortality corresponding to an augmentation of the doses of antitoxin employed in that hospital. These facts should be borne in mind when studying the question of antitoxin dosage.

DR. H. W. BERG said that the results obtained by Dr. McCollom with such enormous doses of antitoxin spoke volumes for the general safety of the antitoxin treatment of diphtheria. From his experience in the Willard Parker Hospital he had come to the conclusion that, leaving the influence on the death-rate entirely out of consideration, cases receiving the very large doses of antitoxin do not do as well as those treated with more moderate doses. Rashes and albuminuria had been less common when small doses had been used in the hospital. He had had good results in his private practice from the antitoxin treatment though never exceeding 1,000 units in a single dose. He objected to very large doses chiefly on the ground that they involved the introduction into the system of too large a quantity of heterogeneous serum.

DR. A. RUPP said that he spoke from the point of view of the general practitioner. He corrected the statement of Dr. Koester that those who had opposed the claims of antitoxin advocates had not published the quantity and other facts connected with the dosage of antitoxin. Concerning the statistics offered by Dr. McCollom he said it would be futile to say anything against them because they could be handled profitably only in one's study where comparisons could be carried on with what others had reported. The evening's discussion and the papers had demonstrated that history has been treating antitoxin claims terribly. Four and six years ago enthusiasts gave only 1,000 or 1,500 units and found those quantities all sufficient

for cases that now were given 3,000, 6,000 and 60,000 units. He asserted that it was absurd to compare the action of morphin and antitoxin apologetically in favor of the latter remedy as had been done by one of the speakers. Morphin was known physiologically and chemically and its specific actions could be specifically controlled, and this cannot be said for antitoxin.

DR. C. HERRMAN said that although it was often stated that the period of immunity conferred by antitoxin is thirty days, it had been proved to be not more than twenty-one days. In measles this period was reduced to two weeks, and it was necessary to use 500 instead of 300 units. The antitoxin rash sometimes very closely simulates that of scarlatina.

DR. KOESTER said that in 1895 while treating several members of one family, one child had received accidentally 12,000, and another 24,000 units of antitoxin. Though these two had recovered rather more slowly than the other members of the family, he had been unable to note any great difference in the action of the very widely different doses employed here. Rashes seemed to him more frequent now than four years ago.

Astringent Medication in Diarrhea.—G. A. Hewitt (*Medical Bulletin*, April, 1900) states that while acute attacks of diarrhea are beneficial by removing undigested and irritating material, a chronic inflammation may result if the dietetic errors to which they are due are not corrected. Diarrhea then no longer possesses a conservative influence, but acts as a debilitating drain. While judicious regulation of the diet is essential in these cases, it is also necessary to administer remedies which have a direct local action upon the affected mucous membrane. In the author's opinion we have such an agent in tannigen, which causes no disturbance of the appetite or gastric digestion. It is usually efficient in doses of five to ten grains, repeated according to the exigencies of the case. Tannigen is of decided value in the management of cholera infantum and infantile diarrhea. These affections, due to bacterial agency, depressed nervous tone, and the intense heat of summer, are dangerous and destructive, especially among those of tender years. Although, as a rule, tannigen is more highly esteemed in chronic than in acute diarrhea, it is of value in the above class of cases.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, October 9, 1900.

DR. ALFRED STENGEL, PRESIDENT.

DR. W. O. XANDER presented two patients who had been the subjects of what was thought to be

INFECTIOUS NEPHRITIS SECONDARY TO MUMPS.

They were cousins who were living together under the same circumstances. Both were about eight years old. They had had measles and whooping-cough some time before, but there was no history of scarlet fever and absolutely no evidence of recent scarlet fever at the time of their illnesses. One boy was seen when he had been sick for about a week. He had severe general edema; his urine contained one-third of albumin by bulk, free blood and epithelial and blood casts. No cause of the nephritis was evident. A week later the cousin was taken ill with similar though milder symptoms. Investigation at this time brought out the history that both the boys had had mumps a few weeks before, and that there was a local epidemic of mumps in the neighborhood. Both boys did well under treatment, one regaining entire health, and the other seeming well excepting for the persistence of slight albuminuria. It was noted that one boy in particular had enlarged cervical lymph nodes and adenoids.

DR. J. P. CROZER GRIFFITH said that in considering these cases he thought the chief point was to determine whether the illness which they had had previous to the nephritis was actually mumps. He did not think it possible to make a definite diagnosis of mumps from the history. The laity are likely to consider any acute illness with swelling of the glands about the jaw mumps, but for his own part he had always found that the diagnosis of mumps was likely to be a very difficult one, even when the case is actually seen, since other conditions so frequently simulate mumps very closely. Inasmuch as Dr. Xander did not see the children during the attacks thought to be mumps, there must remain great doubt as to whether they actually had this disease. He did not think this diagnosis probable.

DR. A. A. ESHNER wished to make a point with regard to the nomenclature of this affection. The cases were reported as instances of infectious nephritis, but it seemed not unlikely, as in other infectious diseases, that the renal disturbance might be attributable to the action of the toxic products of the bacteria that might be presumed to be the cause of the primary disease. It would, therefore, perhaps, be more appropriate to designate the condition toxic nephritis or parainfectious nephritis.

DR. W. M. WELCH said he did think the diagnosis of mumps was not clearly established. He had never seen nephritis as a sequela of mumps, and such an occurrence is undoubtedly extremely rare. He would be very much interested in hearing from Dr. Xander whether there were any conditions in these cases which suggested the possibility of previous very mild scarlet fever. The mildness of certain cases of scarlet fever is well known, and any one with much experience in scarlatina has certainly seen instances of severe nephritis following attacks of that disease that would have been entirely overlooked excepting for the occurrence of very slight desquamation. It seemed therefore, that unless scarlet fever could be very positively excluded in these cases it was quite possible that this disease was active in causing the nephritis.

DR. STENGEL said that he saw the cases with Dr. Xander, and at that time expressed doubt as to the diagnosis of previous mumps and a nephritis due to that disease. One child had, at the time he saw him, a swelling of the glands, which suggested the previous existence of mumps. This swelling, however, was below the jaw, and was not due to an enlarged parotid gland. The fauces were also red, and there probably had been a severe sore throat. There was no desquamation or other indication of scarlet fever, and it seemed to him that although the swollen lymph nodes were not the typical ones that probably the cases were instances of a condition similar to that which Pfeiffer, Heubner and others have called glandular fever.

DR. W. O. XANDER stated that he investigated carefully for any history suggesting scarlet fever, and examined the boys with care for the presence of desquamation. There was no suggestion of desquamation even between the fingers, and he thought that he excluded scarlet fever positively. He saw some cases of well-defined mumps in the neighborhood, and although

he had not seen these boys in the attack of what was called mumps by the doctor who attended them at that time, he thought from the history and from the presence of mumps in the neighborhood that they had undoubtedly had this disease; hence he concluded that mumps might justly be considered the primary cause of the nephritis. He admitted that glandular fever, as a cause of nephritis, would be more plausible than the possibility of the attack being due to mumps.

DR. MACLACHLAN showed

A CASE OF CONGENITAL SYPHILIS,

giving the following history :

It was noted that the infant at birth had a very small right eye surrounded by a pale pink zone, and a capillary nevus, extending from the angle of the mouth to the vertex along the median line, and posteriorly to the right ear; another nevus was situated over the left scapula. Four days after birth a small superficial ulcer was noticed at the right angle of the mouth, and about the same time the right eye became inflamed. The child was presented at the St. Christopher's Hospital dispensary five days later, at which time it was noted that the ulcerative process had involved all the tissues of the lower third of the upper lip and had extended to the median line. There had been progressive but less rapid extension of the process up to the time of the report, which was the twentieth day of its existence. Numerous mucous patches had been present constantly on the hard and soft palate and on the buccal mucous membranes. When shown there was a superficial ulceration on the right eyelids, the eyeball was congested and sunken and the bulbar conjunctiva swollen. The cornea was one-third the normal size, but apparently clear. There had been an extensive papular eruption over the buttocks and about the anus, the papules being surrounded by an erythematous base. There were no other evidences of congenital syphilis. The mother had had eight living children, including the present one, and two miscarriages. There were no lesions of the mother's nipples. Treatment by mercurial inunctions has not improved the condition. Cultures from the lesions showed staphylococci and streptococci.

DR. SCHAMBERG said that it did not seem to him that this child presented was in reality affected with syphilis. Ulcerative

syphilitic lesions are extremely rare at birth, and when syphilis exists in the new-born we expect to find secondary lesions, not tertiary. There are rare cases of precocious syphilis which manifest symptoms early, but the case shown did not appear to him to belong in this category. One feature of the case was most striking and suggestive, and that was that all of the lesions were unilateral, *i.e.*, limited to the right side. There was a large vascular nevus on the right side of the face, there was a right sided microphthalmos, there was an ulceration at the angle of the right eyelid, there were several ulcers upon the right side of the hard palate, and the large destructive ulceration upon the lip was limited to the right side. It would seem to him therefore that the lesions were trophoneurotic in character, somewhat analogous to the localized gangrenes that occur at times in herpes zoster, leprosy and other neuritic conditions. It was also possible that the ulcerations were the result of an infection, such as is seen in varicella gangrenosa or cancrum oris, but in view of the one-sided distribution this was less probable. The child was fairly well nourished and did not appear to be gravely ill. In view of the above considerations he would not regard the case as one of syphilis.

DR. STENGEL had seen the case some time before with Drs. MacLachlan and J. Wm. White. Dr. White was quite positive in his statement that the lesion was syphilitic. He thought also that it seemed at that time that it was most probably of that nature. He was led to this view largely by the fact that the spots in the mouth looked exactly like mucous patches. The opinion expressed by Dr. Schamberg however was supported by considerable evidence.

DR. EDSALL said he agreed with Dr. Schamberg in believing that the lesion was not syphilitic. The very early age of the child, its relatively good physical condition, and the absence of any typical syphilitic lesions made syphilis seem improbable. Dr. Schamberg's suggestion of a trophic cause of the condition was an interesting one, and one that seemed a very plausible explanation of the microphthalmos and other lesions; with the possible exception of the destructive lesion more directly under consideration. It occurred to him that this was, perhaps, indirectly due to the vascular change producing the nevus, in other words, probably to thrombosis in the area of the nevus. The

destruction of tissue was confined entirely to the area involved by the nevus; it also began at the point of extreme distal circulation in the nevus and was now extending in the course of the circulation and still remained wholly within the area of involvement by the nevus. The case reminded him of one that he saw in Vienna, in a child of about fifteen months. The baby was admitted with a swelling in each cheek, both of them fairly hard, well limited, the skin surface being a dull rather dark blue, and the mucous membrane of the cheek on each side presenting a small ulceration. The condition in this case was at first thought to be double noma, but the ulcer showed no tendency to extend even though no treatment was used, and there was no appearance of gangrene at any time. Beside this the condition appeared very suddenly. It was accompanied first by pain and marked tenderness, and the child was very anemic. All evidences of trouble were very much reduced in a few days, and the child, excepting for its anemia, became quite well within about ten days. The only reasonable explanation for such a condition seemed to be thrombosis.

DR. THOMPSON S. WESTCOTT presented

A METHOD FOR THE DIFFERENTIAL MODIFICATION OF THE PROTEIDS IN
PERCENTAGE MILK MIXTURES.

In this modification cream and whole or skim milk is used in combination with whey. The fat is therefore furnished by the cream, by the milk (except when skim milk is used), and a small fractional percentage by the whey; the caseinogen by the cream and the milk; and the lactalbumin by all three of the ingredients, but especially by the whey. It is therefore necessary first to derive three preliminary formulæ, giving (1) a secondary proteid percentage, expressing the percentage of caseinogen and the percentage of unseparable lactalbumin derivable from the milk and cream; (2) a secondary lactalbumin percentage, expressing the remaining percentage to be furnished by the whey (from which the quantity of whey needed is at once calculated); (3) a secondary fat percentage, expressing the percentage of fat to be furnished by the cream and milk after deducting the percentage derived from the whey. These secondary values of the usual constants are then to be substituted in Dr. Westcott's formulæ for calculating cream and milk mixtures.

DR. J. P. CROZER GRIFFITH said that while Dr. Westcott's formulæ appeared very complicated he considered his work upon the question extremely valuable. In order to make it useful for practical work it needed elaboration, and formulæ should be prepared for various strengths of mixtures, worked out after this plan, in such a form that they might be carried about for reference. There was no question in his mind that whey was a much neglected infant food. Before he studied medicine, and when he was a student whey was, both in lectures and in textbooks, a food much recommended. Since that time, it has gradually disappeared from writings to a very considerable extent. He has used it with constantly increasing frequency, and has found it very valuable. The great trouble with it was, however, that it contained but little solid matter, and although well borne was not sufficiently nourishing. In some cases this has been overcome by giving a mixture of egg albumen and whey. The egg albumen probably corresponds as closely as anything could to lactalbumin. When the casein of the milk cannot be digested this mixture of egg albumen and whey was frequently a very useful one. This increased the proteid element sufficiently, but did not raise the fats to the proper amount. As the power of digestion grew the addition of a small quantity of a very rich cream should be practiced.

DR. WESTCOTT said that he admitted that these formulæ on the blackboard looked complicated, but after becoming familiar with the meaning of the first five formulæ the rest are but a repetition of old work. He agreed with Dr. Griffith as to the value of whey in the infant dietary. He had found that mixtures of milk and cream with whey, or, for the more delicate cases, mixtures of cream and whey alone at first, were borne perfectly well, and nourish satisfactorily under these conditions. The difficulty with many of the ordinary cream and milk mixtures was that the caseinogen percentage, while comparatively low was still too high for the digestive power of infants; while if the percentage of total proteids, of which caseinogen was $\frac{2}{3}$, was cut down sufficiently to permit of complete digestion of the caseinogen, the amount of proteid nourishment furnished was considerably below a fair living ration. The use of the lactalbumin proteid of whey permitted an increase of total proteids without an increase of the caseinogen.

The method of calculation he suggested enabled the physician to keep the caseinogen percentage as low as the digestive powers of the infant demanded while at the same time the lactalbumin percentage might be increased from a proportion of $\frac{1}{6}$ of the caseinogen percentage to one equalling or exceeding it and up to a limit of 0.80 to 0.84 per cent. Thus the infant could be given a percentage of total proteids nearly twice that which it could digest when caseinogen formed $\frac{5}{6}$ of the total proteids in any mixture not requiring more than 1.50 per cent. of proteids. This modification was, therefore, of great value in the cases requiring the lower proteid percentages.

DR. MAURICE OSTHEIMER reported a case of
FATAL INTESTINAL HEMORRHAGE WITHOUT KNOWN CAUSE
in an infant of five months. (See page 924.)

DR. GRIFFITH thought in the case reported he might find a tuberculous ulcer upon autopsy, or possibly a mesenteric thrombus. In the instances of marasmus in which the gastrointestinal symptoms are not marked, we are accustomed to suspect either tuberculosis or congenital syphilis. Tuberculosis was absent here, and hence the possibility of congenital syphilis might be considered as being the cause of the hemorrhage. That syphilis causes very marked changes in the blood-vessels was, of course, well recognized, but there was nothing like a rupture of blood-vessels evident in this case, and if vascular changes had occurred they were not evident upon examination. In fact, no cause at all was discoverable.

DR. A. A. ESHNER asked whether the case could not be considered one of hemophilia, and whether there was any history in the family that would suggest this affection. A case that he had recently had under his care made it seem not improbable that a diagnosis of local hemophilia might be made. The case was that of an unmarried woman who had had repeated hemorrhage from the bladder with other symptoms of renal calculus. Operation was undertaken but no calculus could be found. The patient afterward passed some small, firm concretions, consisting chiefly of blood-clot. The actual cause of the condition remained unexplained, but it seemed probable that it was one of renal hemophilia, and this possibility in the case reported occurred to him as an explanation of the condition.

DR. OSTHEIMER said he had investigated this point carefully as far as he could, and there was certainly on the mother's side of the family no history of hemophilia.

DR. J. H. JOPSON reported

A CASE OF STRICTURE OF THE LARYNX FOLLOWING INTUBATION FOR
LARYNGEAL DIPHTHERIA,

and exhibited the specimen.

The patient was a boy aged five years who had been a patient in the Municipal Hospital and later in the Children's Hospital. The tube had been retained in the larynx for forty-five days, being frequently coughed out, auto-extubation as well as instrumental extubation always being followed by return of the stenosis. At the end of this time he was able to breathe without the tube, but a stricture developed for which he was admitted to the Children's Hospital about nine months later. At this time he suffered from attacks of severe dyspnea, and examination of the larynx showed a stricture which did not admit the smallest intubation tube. After failure of several attempts to intubate, Dr. Wharton performed tracheotomy. The child did well for several days, but then developed measles and died. The larynx when removed was found to be the site of a dense cicatricial stricture, extending from below the vocal cords to the site of the tracheotomy wound just below the cricoid cartilage. The wall of the larynx was much thickened, very firm, and the lumen admitted with difficulty a grooved director. The stricture of the larynx was in all probability a further stage of the same pathological process which was responsible for the retention of the intubation tube. Whether in such cases the operation of intubation is the cause of the condition, as O'Dwyer believed, when he summed up the causes—with a few exceptions under the head of avoidable traumatism—or whether it is not a consequence of the original diphtheritic inflammation is a matter of dispute. John Rogers has recently published a paper in which he shows the resemblance of the pathological findings to those present in cases of retained canulæ after tracheotomy, and believes the process to be especially one of submucous infiltration and chronic inflammation arising independently of the operation. In the present case there seemed to be a true cicatricial stenosis. Treatment of retained intubation tubes by tracheotomy is unsatisfactory.

O'Dwyer's special tubes often answer in mild cases. Northrup recommended to Dr. Jopson in a personal case the prolonged retention and careful changing of a proper-sized hard-rubber tube. Rogers has had excellent results in obstinate cases by prolonged intubation with tubes as large as could be introduced without undue force. When, owing to the cicatricial contraction, intubation is impossible, as in the present case, tracheotomy with dilatation from below, and later from above, would be indicated.

DR. WELCH reported that in his experience at the Municipal Hospital difficulty had frequently been met with in getting along without the intubation tube when removed after the usual period of six or seven days. When reintroduced and worn for four days longer it might often be dispensed with, but not infrequently its removal and reintroduction had to be kept up for three weeks longer before the patient could do without it. Some cases were so troublesome that tracheotomy had to be resorted to. The experience, however, with tracheotomy as a secondary operation was not very encouraging. The boy whose case was reported by Dr. Jopson was admitted to the Municipal Hospital on the 5th of January, 1899, the second day of diphtheria. It was necessary to intubate at once. He would call attention to the fact that the tube was removed three days afterward, probably because it became occluded, and the child got along without it for three days, when its reintroduction was necessary. After this it was coughed out or removed a great many times, probably fifty in all. The tube was worn altogether for forty-one days, excepting the three days referred to. After this the boy got along without the tube, but with difficulty. He played about actively during the summer, but showed evidence of stenosis, and his breathing was noisy. From what Dr. Jopson stated the boy's condition must have grown worse after he passed out from the Municipal Hospital. The stenosis in such cases was doubtless the result of the formation of cicatricial tissue. It was possible for small ulcers to form in the larynx in consequence of wearing the intubation tube. He had seen these ulcers in three different parts of the larynx: just underneath the epiglottis, where the flange of the tube presses, a little lower down where pressure was made by the bulge in the tube, and at the lower extremity of the tube.

It was not impossible for cicatricial tissue to result from necrosis of the mucous membrane and involvement of the sub-mucous connective tissue incident to the diphtheritic process. Whether the difficulty in the class of cases to which the one under discussion belongs was due to injury caused by the intubation tube, or as the result of necrosis caused by the diphtheritic process, he was not quite sure. When the intubation tube must be worn longer than the usual time the question arises as to whether it was better to persevere with the tube or resort to tracheotomy, and he was not sure which course is preferable. Tracheotomy performed as a secondary operation in such cases so frequently resulted fatally that he felt discouraged from advising it. At present he felt quite inclined to persevere in the use of the intubation tube, and he was encouraged to do so because of the result obtained in two very troublesome cases. One of these patients wore the tube for about ninety consecutive days, and the other over one hundred days, and yet both recovered without any unpleasant consequences.

DR. JOPSON said that it was quite possible in many of these cases that even ulceration was not due to the pressure of the tube. That ulceration is comparatively common is shown by Bokai's report of the discovery of ulceration in 21 out of 46 cases which died after intubation was done. The tube had not been left in for an unusually long period in most of these cases, and consequently it seemed that the ulceration bore no direct relation to the prolongation of the pressure from the tube. He did think, however, that the tube sometimes caused ulceration. He had had 1 case under observation in which this seemed probable. He was obliged in a sudden emergency to use a larger tube than was proper, but removed it a few days later, and when stenosis returned put in the proper size. The smaller tube, however, was coughed out, and the larger tube had to be introduced again. The tube was retained for three weeks in this case, and the child expectorated blood several times when it was changed. The patient, however, got entirely well.

Current Literature.

PATHOLOGY.

Schmieden, V.: Structure and Genesis of Liver Cavernomata. (*Virchow's Archiv.* Vol. clxi., No. 3.)

A study of 32 cases of liver cavernomata, including both adults and children, was made. They may be single or multiple and may occur at any age, even in intrauterine life. The name "angioma hepatis" is not applicable; "cavernoma" or "nevus cavernosus hepatis" should be used; nor can the growths be grouped with the cavernous angiomata of other organs (skin) which are true vessel tumors. They are tissue malformations, analogous to such in other parts of the body, and owe their special structure to secondary, chiefly retrogressive, changes. Neither congestion, hemorrhage, biliary obstruction, nor primary connective tissue or blood-vessel proliferation can cause a cavernoma, which owes its origin to some defect in the original budding of the liver *anlage*—some local tissue transposition or constriction. Cavernomata show very little or no tendency to malignancy.

Concetti, L.: Biology and Pathogenesis of Thrush. (*Arch. de Méd. des Enf.* Vol. iii., Nos. 8, 9 and 10.)

Thrush is a disease of earliest infancy caused by a fungus belonging to the genus *oidium* of the blastomycetes and forming the transition between the blastomycetes proper and the hyphomycetes. The name *oidium albicans* is scientifically (botanically) correct. On solid, alkaline or neutral media, the oidium tends to develop an exclusively cellular form; while in fluid and acid media filaments (mycelia) appear. The cell has a tough membrane containing protoplasts formed of two distinct substances, one of which gives the reaction of proteid or nuclein, the other that of fatty matter. There is almost certainly a nucleus also. Septicemia may result from the invasion of the organism, and nodules of leucocytes and fungus elements form in any or all of the viscera. If the infection is not sufficiently severe to cause death, the oidium ceases to grow after some weeks and the nodules are absorbed, leaving small cicatrices. The fungus may act mechanically by causing thrombosis of important blood-vessels or by obstructing the renal tubules. Small

abscesses are produced at the site of inoculation, the contents sometimes resembling cheesy matter. Absorption from such a focus, or direct inoculation into the circulation, may be followed by a true, general, miliary oidiosis and death. The virulence of *oidium albicans* is markedly increased by passing it through several animals in succession. This may explain the gravity of epidemics of thrush in hospitals. Neither by inoculating bacteria (*proteus*, *coli*, etc.) simultaneously with the *oidium*, nor by placing the animal in bad hygienic surroundings, was it possible, by experiment, to increase the pre-disposition to infection with the fungus. The pathogenic action of the *oidium* is due to the toxic properties of its protoplasm, and this poison is formed by a complex biochemical process in the living organism—the protoplasm of the *oidium* elements and the living cells of the affected animal taking part. It is not formed by dead cells nor by the organic juices extracted from a living animal. When a growth of *oidium albicans* is finely powdered and centrifuged, two layers are formed. The upper contains the protoplasmic proteids and fatty substance, the lower the fragments of the cell membranes and a part of the protoplasm. The upper portion contains the toxic substances, the lower portion is locally irritating and contains an immunizing substance, possibly curative. Rabbits were successfully immunized against virulent cultures by means of gradually increasing doses of the *oidium* residue, or lower portion. After inoculations with the upper portion no immunizing substance is formed by the animal organism; toxic products only result.

MEDICINE.

Ranney, A. L.: Does "Cross-Eye" Affect the General Health? (*The Medical Record*. Vol. lviii., No. 3.)

In an article with the above title he states that the correction of an eye deformity is most desirable. It improves the personal appearance and it may add to the general comfort of the patient in the use of the eyes; but extreme degrees of cross-eye, in which the two eyes cannot be made to hold single images, do not, save in exceptional cases, affect the general health or justify correction as purely a therapeutical measure. The serious damage to health occurs in those who have two

eyes that naturally tend to deviate but which can be used together by an unconscious effort and a large expenditure of nerve force. Such cases suffer from headache, eye-pain and nervous fatigue. General rules for examination of the eyes and treatment are given.

Solaro, A. : Ulceration at the Oral Commissures in Children. (*La Pediatria.* Vol. viii., No. 9.)

The author refers to the condition which is called *perlèche* by the French and *Faul Eck* by the Germans, but which appears to be unrecognized as a clinical entity in a number of countries within which it nevertheless must undoubtedly exist. The condition may be briefly described as an erosion or ulceration of one or both commissures of the mouth, and the secondary phenomena are such as accompany eczema of a fold, or intertrigo, viz. : a certain amount of discharge, crusting at times, with a tendency on the part of the epidermis to undergo thickening and desquamation.

As a rule this affection runs its course in two or three weeks: exceptionally it exhibits pronounced chronicity. It attacks by preference children over two years of age, while adults are not exempt. The prevalence of *perlèche* in an entire family is highly suggestive of contagion; and a streptococcus is said by Lemaistre to be the actual cause of the malady. Raymond, on the other hand, believes that *perlèche* may be caused by any of the pathogenic microorganisms which are found at times in the mouth.

To cure this disease Comby recommends the application of tincture of iodine, Siegert sol. argent. nit. (1-100), and Epstein, dermatol or xeroform, or the wearing of salicylic acid plaster.

Duncan, J. T. : The Treatment of Squint (Strabismus) from the Standpoint of the Family Physician. (*The Canadian Practitioner and Review.* Vol. xxv., No. 7.)

Strabismus has two consequences: First, it produces "cross-eye," and, second, it may cause blindness, more or less complete. Summing up from the standpoint of the general practitioner are the following:

1. In a child aged three years or over, he would in every case (except in weakly children with whom tonics will sometimes relieve the symptoms) advise a thorough examination of the eyes, so as to ascertain the refraction.

2. He would advise that this be done as soon as possible; but if some weeks must elapse before this can be done, he would use atropin drops once, twice or three times a day in both eyes, ordering that the drops be left off for at least two weeks before the child goes to be examined.

3. If it be reported to him that the child needs to wear glasses, he would exercise his influence with the parents to see that they were worn.

4. In case of any hesitancy on the part of the patients to attend to the matter, he would free himself from responsibility by pointing out some of the dangers of delay, as follows:

1. The child may be permanently cross-eyed. 2. He may be partially blind. 3. An operation may be needed in after years. 4. The operation, although it may straighten the eye, will not cure the blindness.

Jacob, H. W.: Notes on a Case of Acute Pancreatitis Complicating Mumps. (*The British Medical Journal*. No. 2060.)

A boy of ten years, who had been well except for an occasional attack of bronchitis and an attack of subacute rheumatism with a probable endocarditis, had a swelling of the parotid glands and also some tonsillitis. The diagnosis of mumps was made, because several boys at school had that disease.

On the fourth day of the illness he had severe vomiting and a violent pain in the upper part of the abdomen. The temperature rose to 102.5° F. The skin was dry and hot. The swelling of the parotids was not so distinct as it had been on the previous day, but the submaxillary glands were tender and enlarged. The abdomen did not give evidence of enlargement of the liver, but there was a tenderness along its lower border. Just below the liver there was a clear area; below this a distinct, sausage-shaped mass could be felt, which was exquisitely tender on pressure. This sensitive region was in the position of the pancreas. There was no pain or tenderness in the lower part of the abdomen. After having evacuated the bowels the mass was less sensitive and it was possible to determine the enlargement of the pancreas with certainty. One week from the onset of the abdominal complication all tenderness had disappeared, and the boy made a good recovery, though he was slightly anemic. The urine did not show sugar or albumin.

The case is of interest and rarity.

Fedele, Nicolo: Severe Erysipelas in an Infant Cured by Injections of Carbollic Acid. (*La Pediatria.* Vol. viii., No. 9.)

The patient was sixteen months old, of sound parentage, breast-fed until the age of eleven months, and uniformly healthy up to the time of the affection about to be described.

He was attacked very suddenly by convulsions, high fever (42° C.), delirium, vomiting and prostration; these general phenomena being evidently dependent upon the evolution of a severe case of facial erysipelas, which in turn was apparently of intranal origin.

The author, having been for several years a believer in the efficacy of carbollic acid in erysipelas, injected hypodermically at a considerable distance from the focus of disease, resorted at once to this method of treatment in the present case. He made use of a 2 per cent. solution of the acid in boiled and filtered water. During eight consecutive days he made no less than thirty-eight injections of this solution, representing 76 cgms. of the acid. The injections were made beneath the skin of the buttocks. This method of treatment was well borne, and appears to have been followed by steady amelioration of the symptoms, almost from the beginning. The baby made a good and uncomplicated recovery.

Dupaquier, E. M.: Measles and Small-Pox in Children. (*New Orleans Medical and Surgical Journal.* Vol. liii., No. 1.)

Under this heading he reports 128 cases of measles and 1 case of small-pox. Of the 128 cases of measles, 5 were well authenticated cases of second attack; of these, 2 were very intense, a period of three years elapsing between the first and second. Their first attack was not rôtheln. He regards the comparative and apparent immunity of sucklings to contagious disease due to the fact that they are comparatively isolated most of the time in their cribs. Unable to walk and play, they do not mix with others, as older children do.

Of the 129 cases which are reported, 22, or 17 per cent., were complicated. Fifteen, or 68 per cent. of these cases, were under four years, and 7 over four years. These figures agree with those usually accepted, that complications and sequelæ in measles are more frequent under four years.

Complications of the usual character are recorded; bronchitis, leading to croupous pneumonia, in 2; bronchopneumo-

nia, 14, with 5 deaths. One case was complicated with scarlet fever, and 1 by acute nephritis. One also had croup. In the management of the bronchopneumonia, the author favors counter-irritants in the way of hot poultices, the application of iodine and of cold pack. He is averse to the use of the blister. Great care must be used in the application of the poultices, so as not to increase the difficulty of respiration.

In measles and in small-pox, as in other infectious conditions, he feels that there is no better measure for abating restlessness and high temperature than the lukewarm bath, 98° F. Sponging is a good substitute, but does not compare with the bath. Irrigation of the bowels with cool water is much better than sponging, but it may cause collapse. Local antiseptics are ordered for the nose, and the room is vaporized with a solution of compound tincture of benzoin. French authors are quoted and seem to have influenced the writer of the paper.

Red, S. C.: Observations upon an Epidemic of Scarlet Fever Occurring in Houston. (*The Texas Medical News.* Vol. ix., No. 8.)

The records of the Health Department of the city of Houston, Texas, showed 369 cases of scarlet fever in eleven months, with 31 deaths. There were also reported during the same period 21 cases of rōtheln with no deaths. It is supposed that the mortality rate was kept high because a great many of the cases had not been reported. Previous to these records it had been supposed that scarlet fever was not present in Houston, and that german measles was the only disease with a scarlet rash that could be found.

The writer states that he has observed cases called german measles and also those of scarlet fever having albumin in the urine. He gives the differential diagnosis of the two diseases, and reports some cases. These cases are of various degrees of severity, with more or less desquamation. The fever was not recorded as having lasted any length of time, usually not more than four or five days, and the symptoms seem to have been of a mild type.

The writer has failed to find any mortality among uncomplicated cases of scarlet fever, except one case in an adult. He states that uncomplicated cases of scarlet fever in Houston have been exceedingly mild, running their course in from five to six

days. In complications, however, where there is septicemia of streptococcic origin, he believes it is a different affair. He thinks that the sequelæ and mortality in scarlet fever are usually due to the streptococcic complication, and not ordinarily to the scarlet fever itself.

After a consideration of all the cases, he believes that the previous records of german measles were wrong; that all these children had scarlet fever of a milder type than was usually noted as such. He doubts the existence of rōtheln as a distinct entity.

SURGERY.

Clegg, J. G., and Moore, F. C. : A Case of Bilateral Ganglionic Neuro-Gliomata of the Face. (*The Medical Chronicle*, Third Series. Vol. ii., No. 6.)

The tumors were observed in a baby of nine months. There were two separate and distinct swellings, each the size of the baby's nose, and they occupied the positions of the lacrymal sacs. The skin was slightly discolored, but movable, and the tumors were not felt to be attached to the bone. There was no pain. There was no nasal obstruction and the baby was healthy. The swelling on the left side was present at birth and the other appeared a few weeks later.

On operation the tumors were found to be encapsulated and were dissected out. It was found that there was an adhesion to the superior maxilla and nasal bone. Both masses were removed entire. Healing was satisfactory.

Microscopically the tumors presented the same structure; they consisted of a sparse cellular tissue enclosed within an ill-defined capsule derived from the adjacent muscular and connective tissues. There were ganglionic cells in the midst of a peculiar reticulum consisting of delicate fibers, among which were embedded small oval nuclei surrounded by a very scanty cell protoplasm. There was no question as to the ganglionic neuro-gliomatous character of the growths.

It does not seem improbable that these growths had their origin in connection with the olfactory lobes and protruded through congenital fissures of the skull and gradually became constricted.

Bartholomew, J. N. : Indications for the Radical Cure of Hernia in Children. (*The Chicago Clinic.* Vol. xiii., No. 6.)

The author closes a brief sketch of this subject by the following recapitulation:

Hernias in children are most frequently of the oblique inguinal variety, are easily closed and promise a better prospect of cure, with less liability to recurrence than in the adult.

Of all the cases occurring in children 8 per cent. are not suitable for truss-treatment.

Trusses are not well borne by children, and are difficult to manage, and nearly 50 per cent. of cases submitted to truss-treatment are still uncured at the end of three years.

Hernias cured by truss-treatment during childhood frequently relapse after adolescence.

Generally speaking, the best time for operation is just before the child assumes the upright position, and mechanical treatment should not be persevered in after this time unless there is marked diminution in the size of the hernial opening.

The indications for the radical cure of hernia in children are:

1. Cases complicated with hydrocele.
2. Irreducible, incarcerated and strangulated hernias.
3. Cases in which the hernia cannot be kept up by a truss without much discomfort to the patient.
4. Cases unable to obtain the cure requisite to successful mechanical treatment.
5. Cases in which mechanical treatment has been faithfully tried without benefit.

Crile, G. W. : Observations in Laryngotomy, Tracheotomy; Intubations, Based on Clinical and Experimental Evidence. (*Journal of the American Medical Association.* Vol. xxxiv., No. 13.)

Experiments on dogs, in which, under anesthesia, the trachea was submitted to different degrees of dilatation, were never followed by any marked change in respiration or circulation. The practical bearing of these experiments is to show the very great safety of operative procedures on the trachea as compared with those on the larynx, where an "inhibition area" occupies the upper and middle portion, and sudden collapse or death follows its irritation at the moment of incision. Intubation experiments showed that the gentle introduction of the

tube causes a very temporary inhibition of respiration, but rude manipulation, external or internal, caused an arrest of respiration and a fall of blood pressure. No inhibition occurred if the laryngeal mucous membrane was first painted with a 4 per cent. solution of cocain. Cutting both vagi or injecting $\frac{1}{100}$ grain of atropin into the jugular vein before the manipulations was followed by the respiratory phenomena as in the other cases, but the heart remained unaffected. The respiration was not inhibited in the experiment after the superior laryngeal nerves had been cut. These experiments show that the reflex inhibition is due to efferent impulses set up by mechanical irritation of the terminals of the superior laryngeal nerves.

In almost every case of intubation there is at least a temporary inhibition of respiration, varying in extent according to the amount of mechanical irritation produced by placing the tube, and to the amount of rawness of the laryngeal mucosa or its protection by the pseudomembrane. The cardiac inhibition is less marked. Collapse and death in intubation are due to the reflex inhibition of the respiration and of the heart from mechanical stimulation of the superior laryngeal nerves in the manipulation of the tube. A preliminary hypodermic injection of atropin or the local application of cocain to the laryngeal mucosa is the best preventive of collapse from reflex irritation. It is important to differentiate between obstruction from membranes pushed down and collapse from reflex inhibition. In the former case there is deep cyanosis, slow, full pulse and continued respiratory efforts for a short time. In reflex inhibition there is pallor instead of cyanosis, disappearance of the pulse from the wrist, slow, weak heartbeats, and there may be instantaneous death. On the appearance of collapse from reflex inhibition the patient should be inclined face downwards, artificial respiration commenced and cold water smartly applied to the skin by striking the chest and abdomen with a cold, wet towel. The towel and basin of cold water are placed near at hand before commencing the operation.

Makuna, M. D.: Note on a Case of *Coccygodynia*; Removal of the *Coccyx*; Recovery. (*The Lancet.* No. 4007.)

A boy of eight years had severe pain in the sacral region and he was unable to sit up. There were loss of weight and anorexia. On rectal examination the two lower segments of

the sacrum were found to be tilted inwards. There was no clear history of injury, and it was a question as to malformation or malnutrition. The boy was kept recumbent and anodynes and tonics were given. After nine weeks, as there had been no improvement, the coccyx was removed. The boy did well, was relieved of his pain and gained in weight and strength.

HYGIENE AND THERAPEUTICS.

Halliburton, W. D.: Remarks on the Use of Borax and Formaldehyd as Preservatives of Food. (*British Medical Journal.* No. 2062.)

The antiseptics most frequently employed as food preservatives are borax and formaldehyd, and experiments to test their action on digestion were therefore made. Boric acid proved itself a very inefficient antiseptic, its feeble action both on organized and unorganized ferments being partly due to its difficulty of solution. Borax, on the other hand, is much more powerful, as one part in one thousand of milk completely inhibited rennet activity, and even smaller proportions delayed its action. At the end of two days milk to which borax had been added was still sweet, while that to which boric acid had been added, as well as the control milk (nothing added), soured within that time.

Formaldehyd in a percentage of 0.5 rendered gastric digestion almost impossible, and a percentage of over 0.05 delayed it considerably. Fibrin was the proteid used in these experiments. While even the weakest formaldehyd solution kept the fibrin free from decomposition, it rendered it very hard and inhibited pancreatic digestion even more strikingly than gastric. The pancreatic digestion of starch was also delayed.

In the milk trade the proportion in which formaldehyd is stated to be used is, roughly, two drops of formalin (40 per cent. formaldehyd) per fluid ounce. Such an addition to milk greatly delays rennet action in all cases; and the curd, when it does form, is slow in appearing, and is never firm as in unaltered milk. Much smaller doses have a similar though less marked effect; thus a few drops of a 0.2 per cent. solution of formaldehyd per ounce of milk raised the time of onset of curdling from twenty seconds to one and a half minutes.

These experiments prove conclusively the injurious effects produced by even minute quantities of certain preservatives on the activity of the enzymes concerned in ordinary digestion and so furnish a cogent reason for prohibiting their use in the preservation of food materials. If the method of cold storage were made compulsory, putrefaction would be prevented without the admixture of foreign substances, and the question could not be raised as to whether more harm will result from the products of putrefaction or from the antiseptic used to hinder or prevent putrefaction.

Hirst, John Cooke : Artificial Feeding of Infants. (*International Medical Magazine.* Vol. ix., No. 7.)

The management of these cases should be divided into (1) *Cleansing the intestinal tract*, which should be effected with calomel and soda in small and hourly doses, together with flushing the colon when necessary. A double-current catheter should be used for the latter operation, and the pressure should not be too high. (2) *Proper feeding*. We should first take cow's milk and add enough water to reduce the percentage of protein from 3 or 3.5 per cent. to 1 or 1.25 per cent. We should then *add* cream and milk-sugar in the same ratio. The result is a modified cow's milk closely agreeing in composition with human milk. A peptogenic powder should then be added and the whole pasteurized. (3) *Hygiene*. This consists principally in keeping the child in the open air as much as possible. For the poor in cities this can be effected only through the aid of the public parks and cheap excursions.

Miller, J. Milton : The Prophylaxis of the Summer Diarrheas in Children. (*International Medical Magazine.* (Vol. ix., No. 7.)

Milk must be sterilized while fresh, preferably at the dairy itself, otherwise it may contain toxins. All directions for feeding should be written out for the mother or nurse; we should not depend upon oral instruction.

It is not enough to wash napkins, these should invariably be boiled.

The mother should always disinfect her hands after handling soiled napkins.

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